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March 4, 2013

U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

TDD No: TO2-09-12-07-0007
E & E Project No: EE-002693-2190

Attention: Chris Reiner, Federal On-Scene Coordinator

Subject: **Acme Cleaners Vapor Intrusion Assessment Report**
3501 McHenry Avenue, Modesto, Stanislaus County, California
Latitude: 37° 41' 27.22" N, Longitude: 120° 59' 44.56" W

INTRODUCTION

In July 2012, the United States Environmental Protection Agency (U. S. EPA) Federal On-Scene Coordinator (FOSC) Chris Reiner tasked Ecology and Environment, Inc's (E & E's) Superfund Technical Assessment and Response Team (START) to conduct indoor and sub-slab air sampling to assess potential releases of tetrachloroethene (PCE) and other chlorinated solvents from the former Acme Dry Cleaners site located at 3501 McHenry Avenue in Modesto, California. Between July 31 and August 1, 2012, U.S. EPA and START collected four residential indoor air samples, four residential sub-slab air samples, and one ambient air sample for analysis of select volatile organic compounds (VOCs). U.S. EPA and START revisited the site on September 25, 2012, to collect an additional three residential sub-slab samples.

This assessment was performed to 1) document whether or not contaminants of potential concern (COPC) are entering residential structures located adjacent to and near the former Acme Dry Cleaners facility through vapor migration, and to 2) document COPC concentrations in ambient air adjacent to the former dry cleaning facility. This report summarizes the field assessment activities and analytical results.

SITE DESCRIPTION

Acme Dry Cleaners (site) is a former dry cleaning facility that occupied a leased space within the commercial shopping center located at 3501 McHenry Avenue in Modesto, California (Attachment A, Figure 1). The approximately 8.94-acre property (parcel number 055-048-001), constructed in 1989, contains many large commercial buildings with 119,046 square feet of retail space. The former Acme Dry Cleaners operated in unit A-2, which is located at the southern end of the shopping center and encompasses approximately 1,500 square feet of retail space. The former dry cleaning facility is bordered by residential properties to the west, a shopping center to the north, the shopping center parking lot and McHenry Avenue to the east, and Standiford Ave with additional commercial buildings to the south. McHenry Avenue runs north to south and is a commercial corridor with numerous restaurants, retail spaces and car dealerships along this portion of the avenue.

During this assessment, indoor air and sub-slab vapor sampling and analysis was conducted at four residential units in the (b) (6) apartment complex in the immediate vicinity of the former Acme Dry Cleaners facility, and ambient outdoor air sampling and analysis was conducted at one background location in the front of the apartment club house up- and cross-wind of the site. During the time of sample placement the winds were blowing from the northwest. The (b) (6) apartment complex has numerous units; however, this investigation focused on those units closest to the Acme Dry Cleaners: Exemption 6: privacy . (Attachment A, Figure 2).

Exemption 6 privacy is located approximately 100 feet to the southwest of the former dry cleaners and is a single-story duplex residential structure. Exemption 6: privacy are located approximately 150 feet to the northwest of the former dry cleaners and are on the east side and t(b) (6) (b) (6) . Exemption 6 privacy is located approximately 225 feet to the northwest of the former dry cleaners and is in the southeast corner o(b) (6) (b) (6) . In addition, one background sample was collected on the south side of the (b) (6) which is located approximately 350 feet northwest of the former dry cleaners. All structures sampled within the (b) (6) apartment complex have poured concrete slab foundations.

BACKGROUND

In June 2012, the DTSC requested assistance from the U.S. EPA with indoor air and sub-slab vapor sampling at residences located in proximity to the former Acme Dry Cleaners to evaluate the extent of a known soil gas plume and to determine whether residents are being exposed through soil vapor intrusion to VOCs derived from the dry cleaning operation. In July 2012, U.S. EPA FOSC Chris Reiner tasked START to conduct indoor air, sub-slab vapor, and ambient outdoor air sampling at residential properties adjacent to and nearby the former Acme Dry Cleaners.

As part of the investigation of this site, START reviewed the California Department of Toxic Substances Control (DTSC) Site Screening Assessment, dated May 31, 2011, which serves as a compendium of work related to the Acme Cleaners site. Records show that Acme Dry Cleaners opened at 3501 McHenry Avenue and operated between 1989 and April 2000. Previous investigations conducted by the City of Modesto and summarized in the DTSC report concluded that groundwater and soil vapor near the former Acme Dry Cleaners site may have been impacted by PCE and associated weathering products due to the historical use of chlorinated dry cleaning solvents.

According to the DTSC May 2011 Site Screening Assessment, in November 2002, the City of Modesto reported the presence of PCE in soil gas collected at 10 feet below ground surface at the site at a concentration of 110,000 micrograms per cubic meter ($\mu g/m^3$). In June 2003, the City of Modesto reported the presence of PCE in groundwater and soil gas at the site, with a concentration of 3.3 micrograms per liter ($\mu g/L$) in groundwater and a concentration of 11,000 $\mu g/m^3$ in soil gas collected at 26 feet below ground surface. In October 2004, the Stanislaus County Department of Environmental Resources reported the presence of PCE in groundwater near the site at a concentration of 6.0 $\mu g/L$.

START ACTIVITIES

In order to support U.S. EPA environmental data collection activities, START identified project data quality objectives and prepared an *Emergency Response and Time Critical Quality Assurance Sampling Plan* (ERQASP) dated July 30, 2012 (Attachment B).

During the initial assessment, sampling occurred between July 31, 2012, and August 1, 2012. A total of four indoor air samples, four sub-slab vapor samples, and one background ambient outdoor air sample were collected. In addition, one co-located indoor air duplicate sample, one sub-slab duplicate sample and one trip blank sample were collected for quality assurance/quality control (QA/QC) purposes. START was tasked to mobilize for a second round of sub-slab sampling on September 25, 2012, in an attempt to collect data with lower detection limits. During the second round of sampling, START collected three sub-slab samples from previously installed sampling ports and submitted one trip blank sample for QA/QC purposes.

Indoor air samples were collected at four occupied residential units to assess potential vapor intrusion of COPCs from contaminated or potentially contaminated soil and groundwater beneath each structure's sub-flooring. For each residence, one sample was collected from an indoor area commonly accessed by the homeowner (e.g., bedrooms, kitchens, and living rooms) at a height approximately 3 to 5 feet above floor surface (child to adult breathing zones, as appropriate), and one sub-slab soil vapor sample was collected via a port installed into the concrete foundation of each residence to assess COPC concentrations under the foundation of the structure where vapor concentrations were likely to be greatest.

One background outdoor air sample was collected near the entrance on the south side of the apartment complex clubhouse. This air sampling location was selected based on close proximity to the former Acme Dry Cleaners to assess COPC concentrations in what was believed to be background air near the contaminant source area. The air sample was collected from an area where the ground was not covered by pavement, and the sampler was suspended approximately 3 feet above ground surface at the approximate height of a child's breathing zone.

Prior to the first mobilization, 6-liter SUMMA canisters (SUMMAs), calibrated flow regulators and 1-liter SUMMAs were obtained from the analytical laboratory, Air Toxics Ltd. (ATL) located in Folsom, California. The SUMMAs and matched flow regulators were tested by ATL and certified free of the COPCs down to the laboratory's method detection limits.

Immediately prior to installing the flow regulator and deploying the SUMMA, the initial vacuum pressure in each SUMMA was measured using a certified calibrated vacuum pressure gauge. The vacuum pressure, sample name, start time, and canister number were recorded on the sample label upon deployment. Clean nitrile gloves were used by persons handling the SUMMAs. START placed the 6-Liter SUMMAs with matched flow control regulators in the desired indoor air sample location, opened the orifice, and left the SUMMA to collect air for 24 hours. For sub-slab sample collection, START used an impact drill to create a small hole in the foundation of each apartment unit and then installed a dedicated sampling port and grouted it firmly into the foundation. The grout was left to cure for at least an hour before a 1-liter or 6-liter SUMMA was affixed to the sampling port and the orifice opened to collect a grab sample. Indoor co-located duplicate samples were collected by placing a second SUMMA immediately adjacent to the primary sample. A sub-slab duplicate sample was collected by placing two 1-liter SUMMAs on a T-shaped splitter and opening the SUMMA orifices at the same time. Sample locations were photographed after the deployment of each SUMMA. Indoor air samples were collected over an

approximately 24-hour period from July 31, 2012, to August 1, 2012, to represent a 24-hour human exposure scenario.

Upon retrieval, the date, collection time, sampler's initials, and final vacuum pressure were recorded on the sample label. This information was also recorded on the chain-of-custody documentation. The regulator was removed from the SUMMA, and the canister was capped and placed in a sample shipment container. A signed custody seal was placed on each sample container for shipment to the laboratory.

During each sampling event, one SUMMA was used as a trip blank. Similar to field samples, the SUMMA used as a blank was taken to the site, the vacuum pressure was measured, and the sample information was recorded on the label and the chain-of-custody form. The blank SUMMA sample was then re-capped and packaged for shipment to the laboratory along with the field samples. Photographic documentation of the field assessment activities is included as Attachment C.

The deviations from the ERQASP were all related to the remobilization for additional sub-slab sampling. FOSC Reiner requested re-sampling of sub-slab vapor of three residences because the reporting limits of COPCs for the original samples exceeded the RSLs. FOSC Reiner determined that Exemption 6 privacy did not need to be re-sampled in the second round of sampling due to the detection of PCE in the first round of sub-slab sampling.

The ERQASP specified that samples would be analyzed by Air Toxics LTD., in Folsom, California; however, the second round of samples was collected using equipment supplied by the U.S. EPA Region 9 Laboratory in Richmond, California, which also analyzed the samples. An additional three sub-slab samples were collected in Exemption 6: privacy on September 25, 2012. An additional trip blank was submitted with the second round of samples. In order to provide FOSC Reiner with the required reporting limit sensitivity, sub-slab samples were collected with 6-Liter SUMMAs instead of the 1-Liter SUMMAs that would normally be used for sub-slab samples.

Analytical Results

The first round of air samples were analyzed by Air Toxics LTD., in Folsom, California, for volatile organic compounds including PCE and its degradation products trichloroethylene (TCE); cis-1,2-dichloroethylene (DCE); trans-1,2-DCE; 1,1-dichloroethane (DCA); 1,1-DCE; chloroform; carbon tetrachloride; and vinyl chloride by EPA Method TO-15 (modified) with selective ion monitoring (SIM). The second round of air samples were analyzed for volatile organic compounds by the U.S. EPA Region 9 Laboratory in Richmond, California, using EPA Method TO-15 (modified) with SIM. A START chemist conducted Tier 2 data validation in accordance with the April 1990 *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004 OSWER Directive 9360.4-01), prepared by U.S. EPA. All data were found to be acceptable with qualifications as described in the data validation reports for use as definitive data. A summary of analytical results is presented in Tables 1 through 4, Attachment D. Laboratory Analytical Data Validation Reports are included as Attachment E.

Analytical data for COPCs were compared to the 2005 California Human Health Screening Levels (CHHSLs) for residential indoor air developed by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment and the November 2012 U.S. EPA

Regional Screening Levels (RSL) for residential air; these data are presented in Tables 1 and 2. There were a number of detections for compounds not associated with dry cleaning solvents or the degradation of those solvents in concentrations that may pose a health risk; these data are presented in Tables 3 and 4.

Published laboratory reporting limits (RLs) are estimated based on optimal conditions. In the case where it was beyond technical capability of the laboratory to reach the screening level(s), the laboratory RL was used in place of the screening level for analytical data evaluation. In some instances the laboratory RL exceeded one or both of the residential indoor air screening levels (CHHSLs/RSLs) for PCE, carbon tetrachloride, vinyl chloride, chloroform, benzene and 1,1,2-trichloroethane. In these instances, it is unknown whether concentrations of COPCs exceed the regulatory residential indoor air screening level(s).

Of the 13 indoor air and sub-slab vapor samples analyzed, one of the sub-slab samples contained PCE at a concentration that exceeded the RSL of 4.1 $\mu g/m^3$ but not the CHHSL of 180 $\mu g/m^3$; however, the RLs for four sub-slab samples were greater than the RSL. The sub-slab sample that had the PCE concentration above the RSL did not have a corresponding indoor air result above either the CHHSL or the RSL. At two indoor air sampling locations, the RL was above the CHHSL but not the RSL, but these locations did not have corresponding sub-slab samples with elevated concentrations of PCE based on the second round of sampling. During the second round of sampling, PCE was detected in all sub-slab resample locations at concentrations less than both the CHHSL and the RSL.

Break-down products of the degradation of PCE were present in samples. Chloroform was present in indoor air samples at concentrations that exceeded the RSL of 0.11 $\mu g/m^3$ and, while it was detected in sub-slab soil vapor samples it is present in lower concentrations than were found in indoor air samples. This would indicate that chloroform present in indoor air is due to a source other than the soil vapor.

Carbon tetrachloride was not detected in indoor air at concentrations above the RL in any samples; however, the RLs were above both the RSL of 0.41 $\mu g/m^3$ and the CHHSL of 0.0579 $\mu g/m^3$, so it is unknown whether carbon tetrachloride is present in indoor air at concentrations between the RSL and the RL. During the first round of sampling, carbon tetrachloride was not detected in sub-slab vapor samples at concentrations above the RL; however, the RLs were above both the RSL of 4.1 $\mu g/m^3$ and the CHHSL of 25.1 $\mu g/m^3$, so it was unknown whether carbon tetrachloride is present in indoor air at concentrations between the RSL and the RL. During the second round of sampling with lower detection limits, carbon tetrachloride was detected in all three resampled units at concentrations lower than both the RSL and the CHHSL.

Vinyl chloride was not detected in indoor air at concentrations above the laboratory RL in samples; however, the RLs were above both the RSL of 0.16 $\mu g/m^3$ and the CHHSL of 0.031 $\mu g/m^3$, so it is unknown whether vinyl chloride is present in indoor air at concentrations between the RSL and the RL. Vinyl chloride was not detected in sub-slab soil vapor at concentrations above the laboratory RL in any of the first round of samples; however, the RLs were above both the RSL of 1.6 $\mu g/m^3$ and the CHHSL of 13.3 $\mu g/m^3$; however, during the second round of sampling vinyl chloride was not detected at levels above the RSL or the CHHSL.

Several compounds that were not primary COPCs (i.e., not a product of decomposition of PCE) were present in indoor air samples collected at the site. Of these results, the compounds 1,2-DCA

and benzene, which are not associated with PCE degradation, were detected in concentrations above their respective screening levels. The compound 1,2-DCA was detected in all indoor air samples at concentrations above both the RSL of 0.094 µg/m^3 and the CHHSL of 0.116 µg/m^3. In the first round of sub-slab soil vapor sampling, 1,2-DCA was detected in one sub-slab soil vapor at a concentration above the laboratory RL. Unit 213 had an estimated sub-slab 1,2-DCA concentration of 1.9 µg/m^3, which is above the RSL of 0.94 µg/m^3. In all other units, 1,2-DCA was not detected in sub-slab soil vapor at concentrations above the laboratory RL; however, the RLs were above the RSL of 0.94 µg/m^3, so it was unknown whether 1,2-DCA was present at concentrations between the RSL and the RL. FOSC Reiner chose to perform a second round of sub-slab sampling with even more sensitive analysis based on these elevated levels of 1,2-DCA in the indoor air samples. FOSC Reiner wanted to determine if 1,2-DCA is entering the residences through the soil vapor exposure route. Subsequent sampling documented that 1,2-DCA was not present in sub-slab soil vapor at concentrations above the laboratory's most sensitive RL, which is below the RSL; therefore, soil vapor is not likely an exposure pathway, and elevated 1,2-DCA concentrations in indoor air samples are likely from a different source.

Benzene was detected at all indoor air sample locations at concentrations above both the RSL of 0.31 µg/m^3 and the CHHSL of 0.084 µg/m^3; however, in the first round of sub-slab soil vapor sampling, benzene was not detected in sub-slab soil vapor at concentrations above the RSL or the CHHSL. Additionally, benzene was detected in the outdoor ambient air sample at a concentration above both the CHHSL and the RSL. Therefore, the indoor air benzene concentrations above the RSL and CHHSL are not likely due to a soil vapor exposure pathway.

Additionally, there were elevated (i.e., above laboratory RLs) measurements of ethanol in indoor air, sub-slab soil vapor, and ambient outdoor samples. However, there is neither an established RSL nor a CHHSL for ethanol in air, so comparison criteria for this compound are not available.

Analytical results for the ambient outdoor air sample collected at the site did not contain PCE or its breakdown products at concentrations above laboratory RLs; however, chloroform, carbon tetrachloride and vinyl chloride RLs exceeded one or both of the residential indoor air screening levels (CHHSLs/RSLs) so it is unknown whether concentrations of these COPCs exceed the regulatory residential indoor air screening level(s) in ambient air. Four QA/QC samples were analyzed, including two co-located duplicate samples and two trip blanks. The indoor air and sub slab vapor duplicate sample results were within the acceptable range of concentrations compared to their primary sample pairs. Neither of the blank samples contained detectable levels of any COPC.

Conclusions

The objective of this assessment was to determine if COPCs are present in the indoor air of residential structures located near the former Acme Dry Cleaners facility as a result of soil gas intrusion. PCE was detected in sub-slab vapor in one residential unit at a concentration above the RSL but not the CHHSL; however, it was not detected above the CHHSL or the RSL in indoor air at this unit or at any of the other residential structures sampled. Chloroform is a common product of decomposition of PCE and was detected in indoor air samples; however, lower concentrations of chloroform were detected in sub-slab soil vapor samples than were detected in indoor samples. Therefore, another source is likely the reason for elevated indoor concentrations of chloroform. Other products of decomposition of PCE were not detected above their respective CHHSLs or RSLs in any samples, although RLs for some of these compounds exceeded project screening levels.

Two compounds that are not associated with the degradation of PCE were also detected in samples at concentrations above screening levels. 1,2-DCA was detected at concentrations above the RSL and the CHHSL in all indoor air samples, but it did not exceed the established comparison criteria for sub-slab vapor samples. Benzene was also detected in indoor and ambient air samples at concentrations that exceed the RSL and CHHSL, but it was not detected in concentrations that exceed the RSL or CHHSL in sub-slab vapor samples.

At this time, PCE and products of the decomposition of PCE do not appear to be entering the residential structures nearest to the site through soil gas migration. FOSC Reiner determined that additional indoor air sampling and soil gas sampling is not warranted at this time.

Please contact me at (510) 893-6700 if you have any questions regarding START's activities associated with this project.

Respectfully,

Seth Heller
START Project Manager

Attachments:
Attachment A: Figures
- Figure 1 – Site Vicinity Map
- Figure 2 – Site Location Map

Attachment B: Time Critical Quality Assurance Sampling Plan for Air Sampling
Attachment C: Photographic Documentation
Attachment D: Tables
- Table 1 – Residential Indoor Air Analytical Data Summary for COPCs
- Table 2 – Residential Indoor Sub-Slab Analytical Data Summary for COPCs
- Table 3 – Residential Indoor Air Analytical Data Summary for Unassociated Compounds
- Table 4 - Residential Indoor Sub-Slab Analytical Data Summary for Unassociated Compounds

Attachment E: Laboratory Analytical Data Validation Reports

Project # EE-002693-2190
TDD# TO-02-09-12-07-0007

Source: Aerial Photography - Bing Maps

LEGEND

- Approximate location of the former Acme Cleaners
- Ambient summa canister air sample location
- 230 — Summa canister air sample location

N

0 150 300 Feet

Figure 2
Site Location Map
Former Acme Cleaners
3501 McHenry Avenue, Modesto, California

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Project # EE-002693-2190
TDD# TO-02-09-12-07-0007

Source: ESRI Streetmaps

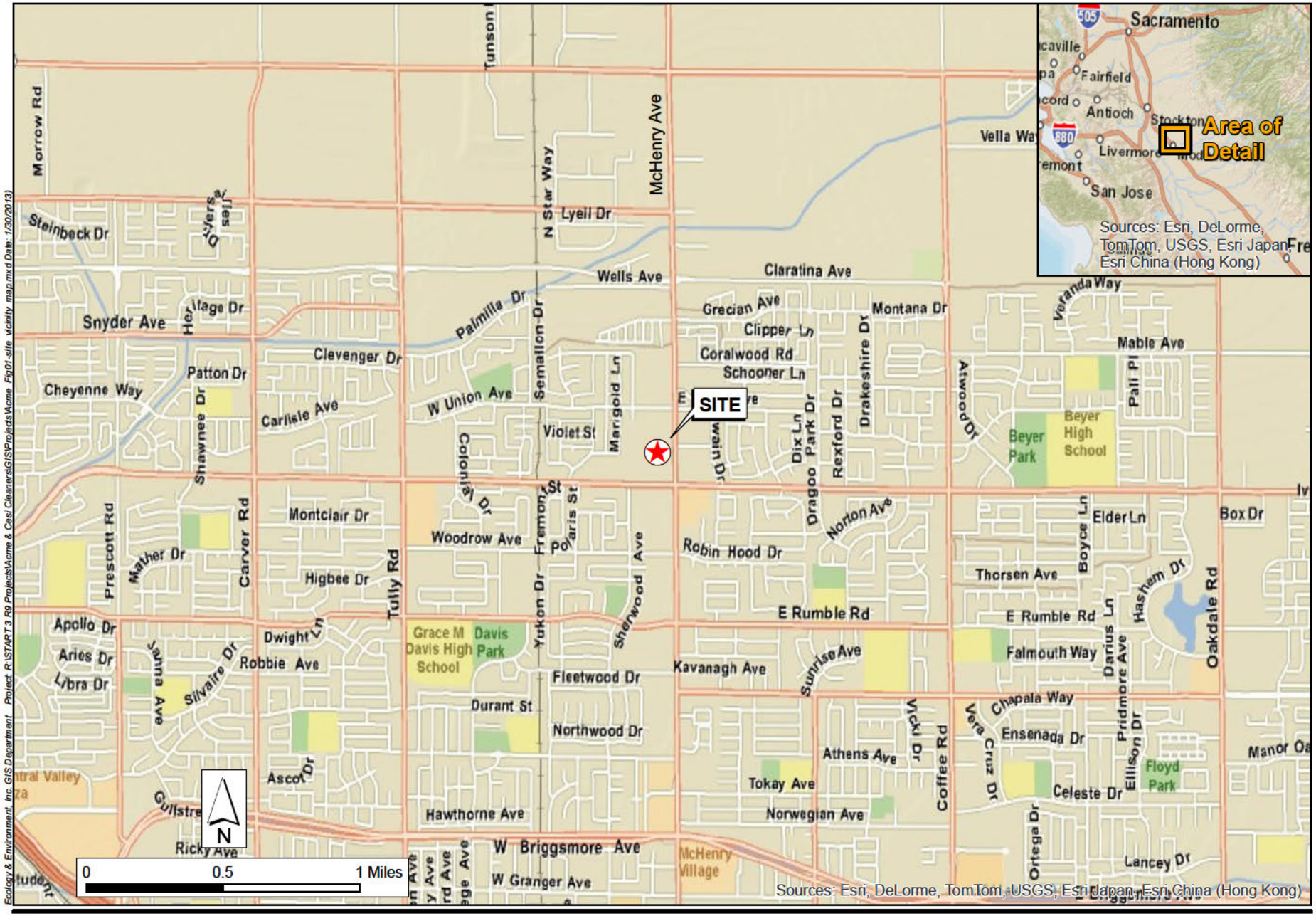

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Figure 1

Site Vicinity Map
Former Acme Cleaners
3501 McHenry Avenue, Modesto, California

U.S. EPA Emergency Response Section (ERS) and Superfund Technical Assessment and Response Team (START)

Quality Assurance Sampling Plan for Vapor Intrusion Assessment and Associated Sampling

Response Location(Site Name) : Acme Cleaners

TDD #:02-09-12-07-0007

START Project #: 002693.2190.01RA

Date: July 25, 2012

Prepared by: (b) (6)

Reviewed by: (b) (6) (b) (6) **July 30, 2012**

Approved by:

This sampling plan was prepared and delivered to the EPA OSC (select one):
X Prior to Sampling ☐ **Post Sampling (within one month of sampling)**

This field sampling plan is intended to be used in conjunction with the EPA's Region 9 Emergency Response Section's (ERS) Generic Data Quality Objectives (DQOs) for Removal Assessments Involving Vapor Intrusion and with the generic Sampling and Analysis Plan (SAP) for Removal Assessments and Removal Support Assessments of Vapor Intrusion Sites. Since the field sampling plans it is for a project supporting the U.S. EPA Region 9 ERS, this document is reference as a Quality Assurance Sampling Plan (QASP). This QASP has been designed to ERS and START personnel in their preparation for collecting, analyzing, shipping, storing and handling samples collected during an emergency response. The use of this QASP will involve forethought and planning that should help direct the sampling and analytical work. It is meant to be used for all ERS Vapor Intrusion site projects. Sampling teams should always reference standard quality procedures, standard operations procedures, standard methods for specific sampling and analytical guidance.

The development of this QASP will improve the documentation, communication, planning, and overall quality associated with the sampling and analysis by:

1) encouraging field teams to consider their goals and objectives before the generation of environmental data,
2) documenting predetermined information in a standardize format,
3) increasing the communication between sampling personnel and decision makers, and
4) detailing expectations and objective before samples are collected.

1.0 Introduction and Background. ***Describe the site and specify the geographic boundaries for the site, contaminates of concern and any specific areas of concern***. *What is the problem, what precipitated the response, which agencies and other entities (e.g., contractors) are on site, who has taken the lead for the response and for environmental clean-up actions?*

This investigation of the former Acme Cleaners in Modesto, California site is driven by a Department of Toxic Substances Control (DTSC) preliminary groundwater investigation which concluded in May of 2011. The site is located at 3501 McHenry Avenue, Modesto, California. The DTSC report shows that one groundwater sample collected in the immediate vicinity of the former drycleaner site is above the Maximum Contaminant Level (MCL) for tetrachloroethylene (PCE). The DTSC groundwater investigation included soil gas sampling and analysis at the Acme Cleaner site property, but did not evaluate indoor air at any nearby residences. The soil gas investigation did not identify elevated soil gas concentrations in samples collected at the former Acme Cleaners site property.

This investigation by the U.S. EPA Emergency Response and START expands upon the previous DTSC area of interest by including an apartment complex which is closest residential structure to the former Acme Cleaners site. This investigation is primarily within an apartment complex to the west of the Acme Cleaners site This investigation will focus on the indoor air and sub-foundation (sub-slab) sampling and analysis.

2.0 Objectives. *Brief statement on the general project objectives and goals. What question is to be resolve? Specific objectives are summarized in Table D.*

Air sampling and analysis will be conducted in living areas and in sub-slab areas at residences adjacent to the former Acme Cleaners. The resulting analytical data s will be compared to residential and industrial criteria to determine if subsurface PCE contamination presents a breathing hazard to residents. The data will be used by FOSC Chris Reiner to assist with determining whether additional remedial action is necessary.

2.1 Data Use Objectives.

Data that are generated will be used:

To compare with site-specific action levels or risk-based action levels (e.g., SSL, MRL, ESL, etc) to determine if an acute or chronic health threats exist.

2.2 Sampling Objectives. (What are you proposing to do?)

1 X Soil vapor sampling between under foundation.

2 X Indoor air sampling in crawl space of a raise foundation

3 X Indoor air sampling within structures

2.3 Data Type

In general, data type and data needs should be decided prior to data generation. The data can be generally divided into three categories: definitive methodology data (generally data generated using standardize methods), non-definitive methodology data (also referred to as screening data) and screening data with at least 10% definitive conformation. Typically definitive data is generated for VI assessment sites. Reported data should be verified (by a party other than the laboratory) as meeting specific quality control and data category requirements by following a verification or validation procedure. Refer to the VI SAP for specific quality parameters and requirements.

Check appropriate box(es):

A ☐ Definitive data will be generated. The sampling must be done on an emergency basis. **Due to the time critical situation, preliminary data must be reported and may be used to make decisions without validation. The generated analytical documentation packages will be reviewed and validated. Qualified data will be reported after validation.**

B X Definitive data will be generated. **Full documentation will be required. Analytical data packages will be reviewed and validated prior to reporting.**

2.4 Contaminants of Concern

The contaminants of potential concern (COPC), proposed analytical method, proposed action levels and available reporting limit are summarized in Table A1. The analytical method is typically U.S. EPA TO-15. Applicable Action level and Reporting Limits are found in the VI SAP.

Table A1
Contaminants of Concern
By U.S. EPA TO-15 or equivalent method

COPC	Soil Vapor Acton Level	Indoor Air Action Level	Available Reporting Limit
Tetrachloroethylene (PCE)	4.2 µg/m^3	0.412 µg/m^3	0.2 µg/m^3

3.0 Approach and Sampling Methodologies

3.1 Sampling Approach

The sampling approaches as Judgmental (Biased)

3.2 Field Sampling

3.2.1 Sampling Collection Equipment

Field equipment requirements are summarized in Table B.

Table B
Field Sampling Equipment

Matrix	Sampling Equipment	Quantity	Dedicated or Reusable	Decon Solution	Resource/ Contractor
TO-15 for indoor	X 5-liter Summa Canisters or Equivalent	8	Dedicated	N/A	ATL
	X Mass flow controller	8	Dedicated	N/A	ATL
	X Certified Pressure Meter	1	Reusable	N/A	START
	□ Stainless steel tubing and fittings for raise foundations				
TO-15 for Soil Vapor under foundation	X Hand Held Power Drilling Equipment	1	Reusable	NA	EPA
	X Hand pump for purging	1	Resable	N/A	START
	X Stainless steel tubing and fittings	5	Dedicated	N/A	START
	□ Certified Pressure Meter				
TO-15 for Soil Vapor General	□ Direct Push Drilling Equipment				
	□ 1-liter Summa Canisters or Equivalent	5	Dedicated	N/A	ATL
	□ Teflon tubing and fittings				
	□ Certified Pressure Meter				
Other Methods	□ Cartridges				
	□ Sampling pumps				
	□ Fitting and tubing				
	□ Pump Calibrator				

3.2.2 Sample Locations

Indicate the name of each sampling location (i.e. address, room) and type of sample to be collected (e.g. soil vapor grab, 24-hr indoor air, crawl-space air grab, 24-hr ambient air, sub-slab soil vapor grab)and describe the rationale for the each sample location chosen.

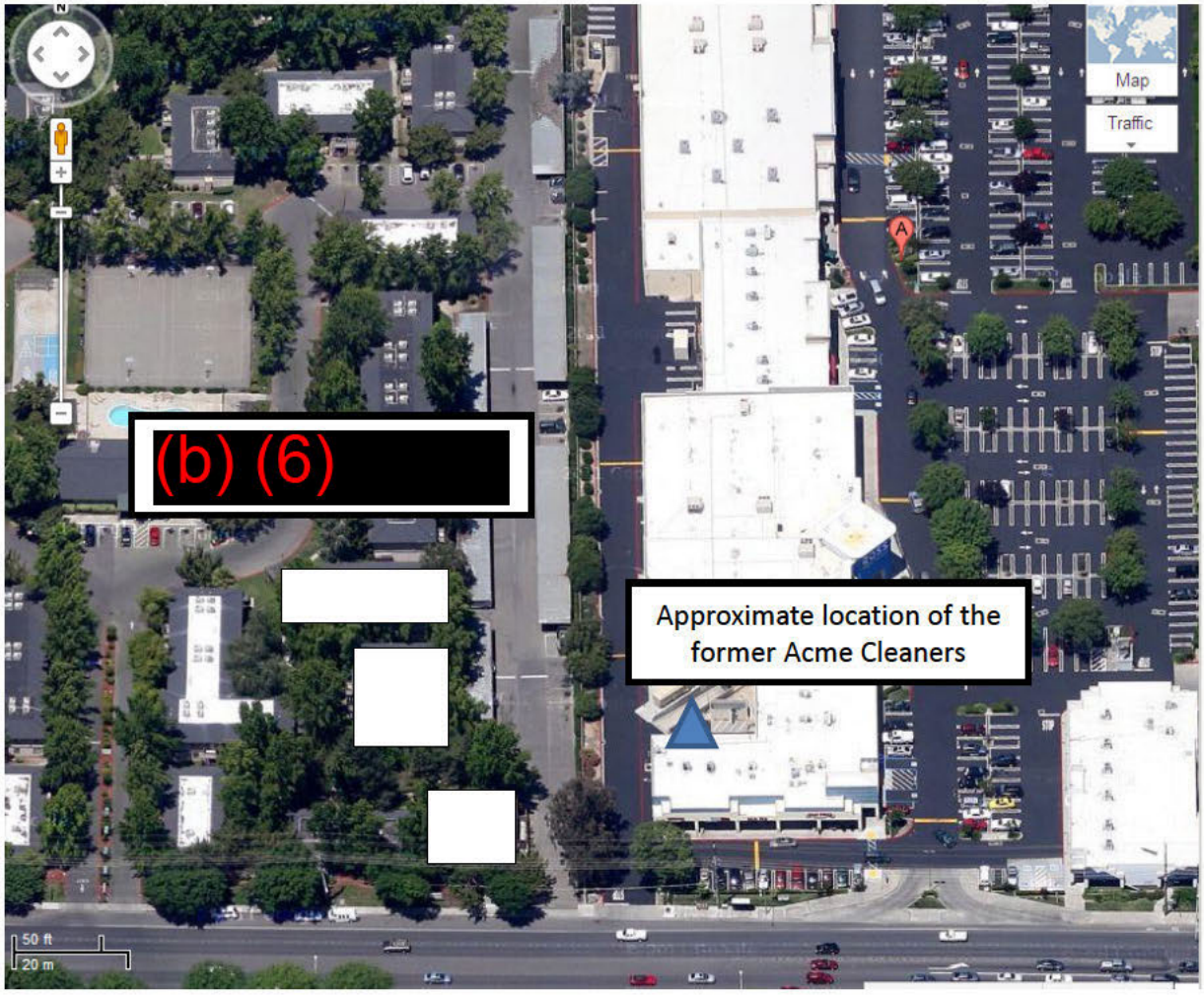
Indoor air samples will be collected from five residential units within the apartment complex west of the former Acme Cleaners site. . The five apartment units that are sampled will be selected on-scene from nine potential homes based on allowed access. Collected samples will be analyzed for PCE. START and U.S. EPA will be certain to inquire with residents regarding the recent use of paints, and other VOC containing items and refraining from use of these confounding chemicals during the time of sample collection.

One 24-hour composite indoor air sample will be collected at each residential location, and one grab sample from a through-slab port at each of the residential structures will be collected. Indoor air samples inside residential structures will be collected from 3 to 5 feet above the floor surface at the approximate height of an adult or child's breathing zone, as appropriate. The indoor air sample will be collected from inside each residential structure at a specific location (i.e. living room, kitchen) determined in the field by the OSC. The selection of sampling locations within a structure is usually judgmental or biased toward the most susceptible room to vapor intrusion, or a location where exposure is most prolonged, like bedrooms and living rooms, or where the most sensitive individuals are (such as a nursery). One grab air sample will be collected from under residential structures using EPA-installed through-slab ports. Any exceptions or deviations will be discussed with the FOSC prior to sampling and noted in the field notebook.

Additionally, samples will be collected from areas outside of the structures and outside the footprint of the suspected groundwater plume to better characterize COPC levels in ambient air. At least one ambient air sample will be collected to characterized ambient air COPC levels. During air sampling, 100 % clean certified summa canisters for Method TO-15 (SIM) will be collecting indoor or ambient air for approximately 24-hours. Appropriate quality assurance/quality control samples will be included.

Sketch a map of the site and any areas of concern. Indicate sampling locations or sampling areas in Figure A and included names. Use a scale that is meaningful for the sampling work covered under this plan. Sketch out where the samples will be collected and include sampling location names. Attach a local map to this plan if it is available.

Figure A
Sample Location Map



3.2.3 Sample Labeling and Documentation

Sample Collection Media Labels

Sample labels or tags will clearly identify the particular sample and should include the following:

1. Site name
2. Time and date samples were taken
3. Sample preservation
4. Analysis requested (optional if sample is a canister)
5. Sample location and/or
6. Canister identification number
7. Initial and Final pressure measurements

Sample labels will be securely affixed to the sample container.

Chain of Custody Record

A chain of custody record will be maintained from the time the sample is taken to its final deposition. Every transfer of custody must be noted and signed for, and a copy of this record kept by each individual who has signed. When samples (or groups of samples) are not under direct control of the individual responsible for them, they must be stored in a secured container sealed with a custody seal.

The chain of custody record should include (at minimum) the following:

1. Sample identification number
2. Canister identification number
3. Analysis requested
4. Sample date and time
5. Names(s) and signature(s) of sampler(s)
6. Signature(s) of any individual(s) with control over samples
7. Canister identification number
8. Initial and Final pressure measurements
9. Collection air volume if collected with cartridge or tube

Custody Seals

Custody seals demonstrate that a sample container has not been tampered with or opened. Boxes or envelopes with air sample a sealed, not individual canisters or tubes. The individual in possession of the sample(s) will sign and date the seal, affixing it in such a manner that the container cannot be opened without breaking the seal. The name of this individual, along with a description of the samples' packaging, should be noted in the field book.

All sample documents will be completed legibly in ink. Any corrections or revisions will be made by lining through the incorrect entry and by initialing the error. These include the logbooks, the chain of custody forms, this field QASP and any other tracking forms.

Field Logbook

The field logbook is essentially a descriptive notebook detailing site activities and observations so that an accurate account of field procedures can be reconstructed in the writer's absence. All entries will be dated and signed by the individuals making the entries and will include the following:

1. Site name and project number
2. Names of sampling personnel
3. Dates and times of all entries (military time preferred)
4. Descriptions of all site activities, especially sampling start and ending times. Include site entry and exit times
5. Noteworthy events and discussions
6. Weather conditions
7. Site observations
8. Identification and description of samples and locations
9. Subcontractor information and names of on-site personnel
10. Date and time of sample collections, along with chain of custody information
11. Record of photographs
12. Site sketches
13. Exact times of various activities and occurrences related to sampling
14. Deviations from standard procedures or methods and the rational for the deviations.

The field log sheets are used for VI assessment. The sheet template is presented as at the end of this template

3.3 Analysis

3.3.2 Analysis Procedures and Summary

Check boxes of methods used for analysis. The analytical methods per sample and sample location are presented in Table D.

X Volatile organic compounds (SUMMA Canisters, GC) [TO-15]

□ Volatile organic compounds (adsorbent tubes, GC) [TO-18]

□ Volatile organic compounds (Passive Collection)

□ Volatile organic compounds by:

3.4 Analytical Methods and Procedures

The analytical methods per sample and sample location are presented in Table D. General field QC considerations and requirements are presented in Table E.

Table D Sample Locations and Data Objective Summary Indicate Method-- □ U.S. EPA TO-15 or □ TO -18			
Sampling Locations and Identifiers should correspond to location indicated on Figure A			
Sample Location(s)(should match with 3.3.1 and Figure A)	**Sample Identifiers**	**Data Category Refer to Section 2.3**	**Number of Samples**
Indoor samples of Residences of Apt. Complex on McHenry Ave.	AC- MCH-Y-IND-Date-001 (Y indicates Apartment identifier)	Definitive	5/ 6-liter canister
Through-slab Samples of Residences on McHenry Ave	AC- MCH-Y-TS-Date-001	Definitive	5/1-liter canister
Ambient	AC- Street address of ambient location-AMB-Date (indicate reference or background)	Definitive	1/ 6-liter canister
Field Blank 6-liter canister	AC-Blank-Date- 5-liter	Definitive	1/ 6-liter canister
Duplicate Indoor Air Sample Location	AC- MCH-Y-IND-Date-1001	Definitive	1/ 6-liter canister

3.6 Quality Assurance and Quality Control

General field QA/QC considerations and requirements are presented in Table E.

Table E
Quality Control Samples and Data Quality Indicator Goals

QC Sample	Number/Frequency	Data Quality Indicator Goals & Evaluation Criteria	Comments/ Number of samples to be collected
FIELD SPECIFIED QA/QC			
Canister Certification	On each Canister used for sampling	Must be at COPC concentrations that are less the MDL.	5/ 1-liter canisters 8/ 6-liter canister
Canister Pressure Check	Each Canister before and after sample collection	If the difference between lab pressure and initial pressure is greater than ±10 percent, then the canister can not be used.	13
Field Canister Blanks	1 per day	Should be at COPC concentrations that are less the MDL.	1/ 6-liter canister only
Ambient Air Reference sample	At least one ambient air sample should be collected from an upwind location not known to be impacted by area of concern	Expected to be at COPC concentration < indoor air or soil vapor samples.	Not submitted
Ambient Air Background sample	At least one ambient air sample should be collected from outside of structure in the area of concern	Expected to be at COPC concentration < indoor air or soil vapor samples.	1/ 6-liter canister only
Equipment Blanks	1 per SDG, per matrix, per method Only when the use of decontaminated non-dedicated equipment is involved.	Expected to be at COPC concentration < indoor air samples.	Not Required
Field Duplicates or Replicates	1 per SDG, per matrix, per method. As needed by sampling objectives. The procedure for collecting duplicate samples can greatly effect the reproducibility.	35% RPD2	1/ 6-liter canister only
SELECTED LABORATORY QA/AC			
Method Blank	1 per SDG, per matrix, per method	Stds and samples should be at least 3 times the blank.	Mandatory.
Matrix Spike or Laboratory Control Standards (LCS)	1 per SDG, per matrix, per method on field designated sample.	75 -125 %R	LCS for TO-15.
Matrix Spike Duplicate or Laboratory Control Standards Duplicate (LCSD)	1 per SDG, per matrix, per method on field designated sample.	<20 RPD for organics;	LCSD for TO-15.
Internal Standards	All samples	50 -200 %R	All analyses only.
PE or second Source Reference Standards	1 per SDG, per matrix, per method	75 -125 %R	If available.

[1] SDG = Sample Delivery Group (Maximum 20 samples)
[2] RPD = Relative Percent Difference
[3] %R = Percent Recovery

4.0 Project Organization and Responsibilities

4.1 Schedule of Sampling Activities

Sampling activities are summarized in Table F.

Table F
Proposed Schedule of Work For Soil/Water Sampling Activities

Activity	Start Date	End Date
Air Sampling	7/31/12	8/1/12

4.2 Project Laboratories

Laboratories used for this project are summarized in Table G.

Table G
Laboratories

Lab Name/ Location	Methods
Air Toxics Laboratory	TO-15

4.3 Project Personnel and Responsibilities

Personnel and responsibilities are summarized in Table H.

Table H
Sample Team(s) Personnel

Personnel and Organization	Responsibility
Seth Heller	Project Manager/Sampling Team Member
Neil Ellis	Sampling Team Member

PHOTOGRAPHIC LOG

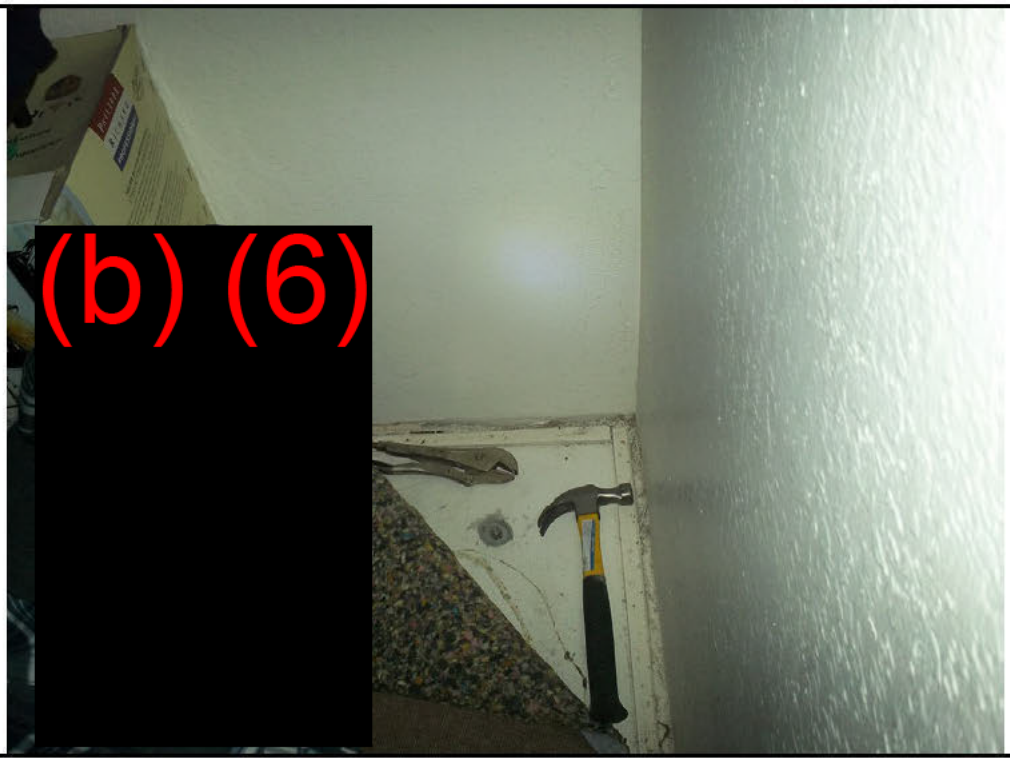
Acme Cleaners
Modesto, Stanislaus County, California

Date: 7/31/2012

Description: START N. Ellis installing a sampling port for sub-slab sampling.

Direction: Down

Photographer: S. (b) (6)

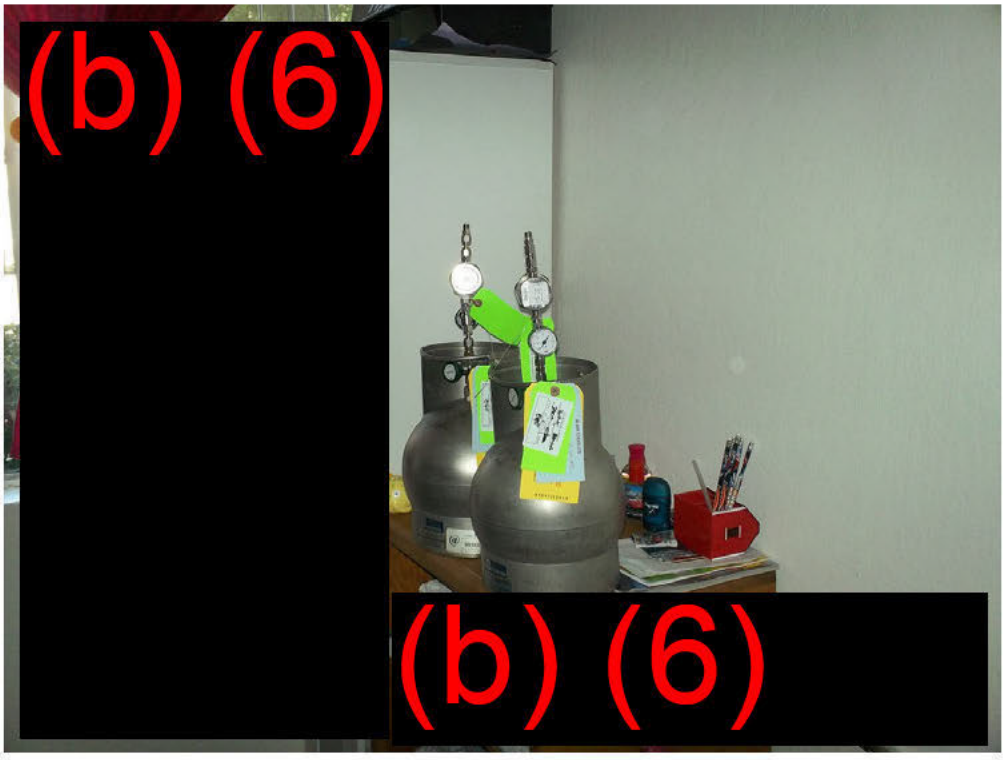


Date: 7/31/1012

Description: Co-located samples placed in a child's room.

Direction: North

Photographer: S. (b) (6)



PHOTOGRAPHIC LOG

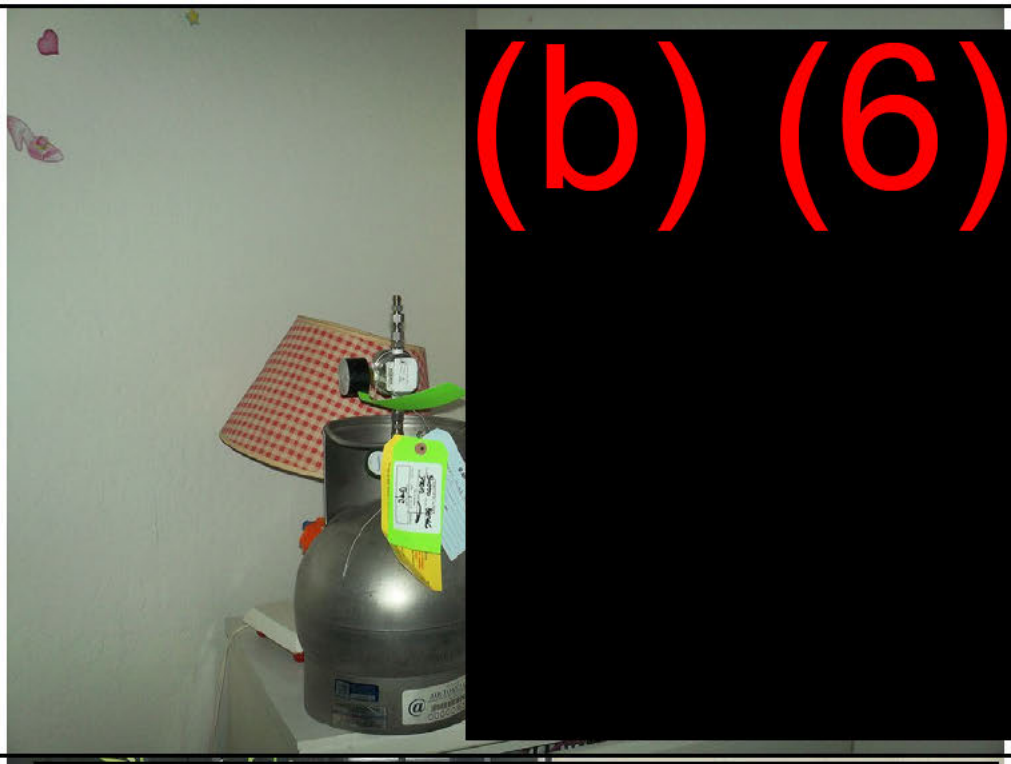
Acme Cleaners
Modesto, Stanislaus County, California

Date: 7/31/2012

Description: Summa canister placed at crib level in a nursery.

Direction: South

Photographer: S. (b) (6)

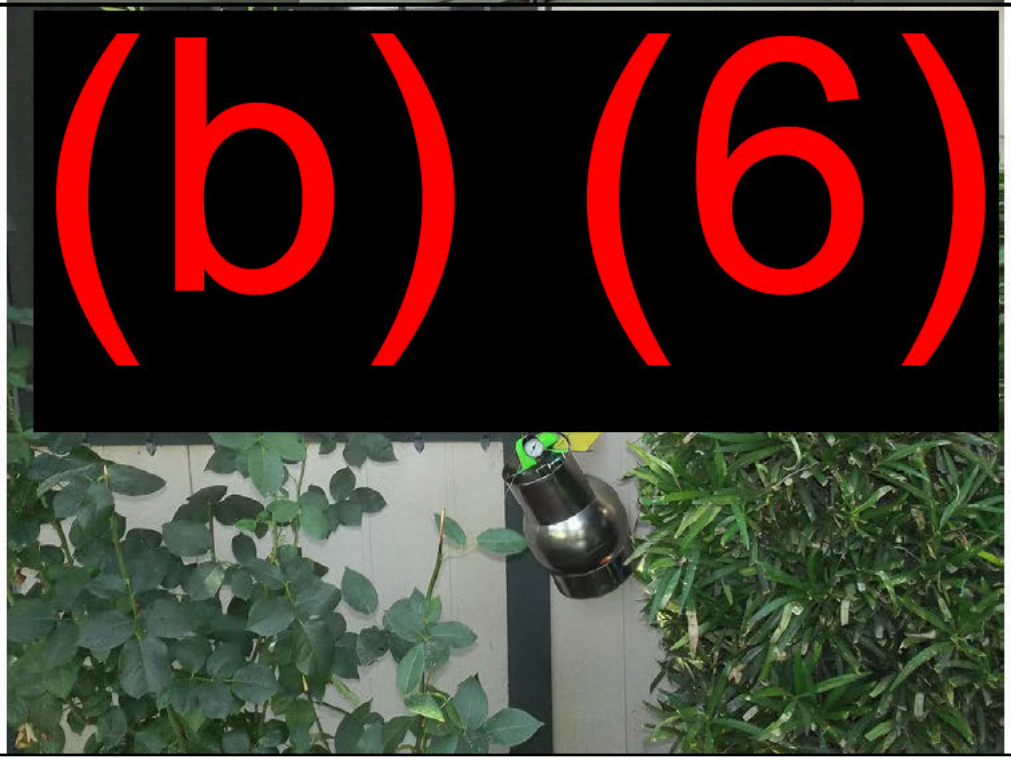


Date: 7/31/2012

Description: The ambient air sample was affixed to the front of the clubhouse.

Direction: North

Photographer: S. (b) (6)



TDD No. TO2-09-12-07-0007
Project No. 002693.2190.01RA

Table 1. Residential Indoor and Ambient Air Analytical Data Summary for COPCs
Acme Cleaners
Modesto, Stanislaus County, California

Analyte	Sample ID:			AC-MCH-230-IND-001	AC-MCH-227-IND-003	AC-MCH-223-IND-005	AC-MCH-213-IND-007	AC-MCH-213-IND-1007	AC-MCH-CLUB-AMB-8112	AC-BLANK-8112
	Sample Location and Description:			Exemption 6 priva Indoor Air Sample Children's Bedroom	Exemption 6 priva Indoor Air Sample Living Room	Exemption 6 priva Indoor Air Sample Children's Bedroom	Exemption 6 priva Indoor Air Sample Children's Bedroom	Exemption 6 priva Indoor Air Sample Children's Bedroom (Duplicate)	Apartment Complex (b) (6) Ambient Air Sample	Trip Blank
	Collection Date:			7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12
USEPA Modified Method TO-15 SIM Analysis (all results in µg/m3)										
Tetrachloroethene (PCE)	0.412	9.4		<0.22	<0.46*	<0.30	<0.50*	<0.50*	<0.27	<0.14
Trichloroethene (TCE)	1.22	0.43		<0.18	<0.36	<0.23	<0.40	<0.40	<0.22	<0.11
cis-1,2-Dichloroethene	36.5	NA		<0.13	<0.27	<0.17	<0 29	<0.29	<0.16	<0.079
trans-1,2-Dichloroethene	73	63		<0.65	<1.3	<0.86	<1.4	<1.5	<0.80	<0.40
1,1-Dichloroethane	NA	1.5		<0.13	<0.27	<0.18	<0 30	<0.30	<0.16	<0.081
1,1-Dichloroethene	N/A	210		<0.065	<0.13	<0.086	<0 14	<0.15	<0.080	<0.040
Chloroform	N/A	0.11		7.8	3.9	2 1	5.9	5.7	<0.98	<0.49
Carbon Tetrachloride	0.0579	0.41		<1.0*	<2.1*	<1.4*	<2.3*	<2.3*	<1.3*	<0.63*
Vinyl Chloride	0.031	0.16		<0.042*	<0.086*	<0.056*	<0.094*	<0.095*	<0.051*	<0.026

California Human Health Screening Level for Indoor Air, Residential, January 2005 (µg/m³)

USEPA Regional Screening Level for Residential Indoor Air With Attenuation Factor of 10, November 2012 (µg/m³)

Notes:

Air Sample Analyses by USEPA Modified Method TO-15 SIM Analysis

* Laboratory detection limit exceeds one or more of the screening levels

NA- Not Available

J - Data results have been qualified as estimated

BOLD -

ug/m³

<0.1

COPC Contaminants of Potential Concern

USEPA United States Environmental Protection Agency

Table 2. Residential Sub-Slab Analytical Data Summary for COPC
Acme Cleaners
Modesto, Stanislaus County, California

TDD No. TO2-09-12-07-0007
Project No. 002693.2190.01RA

Analyte				Sample ID:	AC-MCH-230-TS-002	AC-MCH-227-TS-004	AC-MCH-223-TS-006	AC-MCH-223-TS-1006	AC-MCH-213-TS-008	AC-BLANK-8112	AC-223-TS-009	AC-227-TS-010	AC-213-TS-011	AC-BLANK-92512-02
				Sample Location and Description:	Exemption 6 priv Subslab Air Sample	Exemption 6 priv Subslab Air Sample	Exemption 6 priv Subslab Air Sample	Exemption 6 priv Subslab Air Sample (Duplicate)	Exemption 6 priv Subslab Air Sample	Trip Blank	Exemption 6 priv Subslab Air Resample	Exemption 6 priv Subslab Air Resample	Exemption 6 priv Subslab Air Resample	Trip Blank
				Collection Date:	7/31/2012	7/31/2012	7/31/2012	7/31/2012	7/31/2012	7/31/12 - 8/1/12	9/25/2012	9/25/2012	9/25/2012	9/25/2012
USEPA Modified Method TO-15 SIM Analysis (all results in µg/m3)														
Tetrachloroethene (PCE)	180	94			**12**	<6 3*	<4 6*	<4 6*	<7 0*	<0 14	2 9	2 3	2 03	<0 34
Trichloroethene (TCE)	528	4.3			<4 7	<5 0	<3 6	<3 6	<5 5	<0 11	<0 25	<0 25	<0 25	<0 27
cis-1,2-Dichloroethene	15900	N/A			<3 5	<3 7	<2 7	<2 7	<4 1	<0 079	<0 19	<0 19	<0 19	<0 20
trans-1,2-Dichloroethene	31900	630			<3 5	<3 7	<2 7	<2 7	<4 1	<0 40	<0 19	<0 19	<0 19	<0 20
1,1-Dichloroethane	NA	15			<3 5	<3 7	<2 8	<2 8	<4 2	<0 081	<0 19	<0 19	<0 19	<0 20
1,1-Dichloroethene	NA	2100			<3 5	<3 7	<2 7	<2 7	<4 1	<0 040	<0 19	<0 19	<0 19	<0 20
Chloroform	NA	1.1			<4 3*	<4 5*	<3 3*	<3 3*	<5 0*	<0 49	J 0 17	**1.46**	<0 23	<0 24
Carbon Tetrachloride	25.1	4.1			<5 5*	<5 8*	<4 3*	<4 3*	<6 5*	<0 63	0 35	0 35	0 35	<0 31
Vinyl Chloride	13.3	1.60			<18*	<2 4*	<1 7*	<1 7*	<2 6*	<0 026	<0 12	<0 12	<0 12	<0 13

California Human Health Screening Level for Indoor Air, Residential, January 2005 (µg/m³)

USEPA Regional Screening Level for Residential Indoor Air With Attenuation Factor of 10, November 2012 (µg/m³)

Notes:

Air Sample Analyses by USEPA Modified Method TO-15 SIM Analysis

* Laboratory detection limit exceeds one or more of the screening levels

NA- Not Available

J - Data results have been qualified as estimated

BOLD -

µg/m³

<0.1

COPC Contaminants of Potential Concern

USEPA United States Environmental Protection Agency

Table 3. Residential Indoor Analytical Data Summary for Unassociated Compounds
Acme Cleaners
Modesto, Stanislaus County, California

TDD No. TO2-09-12-07-0007
Project No. 002693.2190.01RA

Analyte	Sample ID:			AC-MCH-230-IND-001	AC-MCH-227-IND-003	AC-MCH-223-IND-005	AC-MCH-213-IND-007	AC-MCH-213-IND-1007	AC-MCH-CLUB-AMB-8112	AC-BLANK-8112
	Sample Location and Description:			Exemption 6 privacy Indoor Air Sample Children's Bedroom	Exemption 6 privacy Indoor Air Sample Living Room	Exemption 6 privacy Indoor Air Sample Children's Bedroom	Exemption 6 privacy Indoor Air Sample Children's Bedroom	Exemption 6 privacy Indoor Air Sample Children's Bedroom (Duplicate)	Apartment Complex (b) (6) Ambient Air Sample	Trip Blank
	Collection Date:			7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12
USEPA Modified Method TO-15 SIM Analysis (all results in µg/m3)										
1,2-Dichloroethane	0.116	0.094		**0.22**	**0.51**	**0.85**	**3.3**	**3.3**	<0.16	<0.081
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	31000		<1.3	<2.6	<1.7	<2.8	<2.8	<1.5	<0.77
Hexane	NA	730		0.75	<1.2	1.0	<1.3	<1.3	<0.71	<0.35
1,1,1-Trichloroethane	2290	5200		<0.18	<0.37	<0.24	<0.40	<0.40	<0.22	<0.11
1,1,2-Trichloroethane	NA	0.15		<0.18*	<0.37*	<0.24*	<0.40*	<0.40*	<0.22*	<0.11
Benzene	0.084	0.31		**0.42**	**0.63**	**0.83**	**0.62**	<0.59*	**0.43**	<0.16
Toluene	313	5200		5.5	7.3	26	4.6	4.6	1.7	<0.075
Ethanol	NA	NA		1800 J	1500 J	850 J	1100 J	1200 J	22	<0.94
Acetone	NA	32000		64	79	56	76	76	25	<1.2
2-Propanol	NA	NA		160	49	62	130	140	<2.5	<1.2

California Human Health Screening Level for Indoor Air, Residential, January 2005 (µg/m^3)

USEPA Regional Screening Level for Residential Indoor Air, November 2012 (µg/m^3)

Notes:

Air Sample Analyses by USEPA Modified Method TO-15 SIM Analysis

* Laboratory detection limit exceeds one or more of the screening levels

NA- Not Available

J - Data results have been qualified as estimated

BOLD - Exceeds Action Level

ug/m^3 micrograms per cubic meter

<0.1 Below laboratory detection/reporting limit

USEPA United States Environmental Protection Agency

TDD No. TO2-09-12-07-0007
Project No. 002693.2190.01RA

Table 4. Residential Sub-Slab Analytical Data Summary for Unassociated Compounds
Acme Cleaners
Modesto, Stanislaus County, California

Analyte	Sample ID:			AC-MCH-230-TS-002	AC-MCH-227-TS-004	AC-MCH-223-TS-006	AC-MCH-223-TS-1006	AC-MCH-213-TS-008	AC-223-TS-009	AC-227-TS-010	AC-213-TS-011	AC-BLANK-92512-02
	Sample Location and Description:			Exemption 6 priva Subslab Air Sample	Exemption 6 priva Subslab Air Sample	Exemption 6 priva Subslab Air Sample	Exemption 6 priva Subslab Air Sample (Duplicate)	Exemption 6 priva Subslab Air Sample	Exemption 6 priva Subslab Air Resample	Exemption 6 priva Subslab Air Resample	Exemption 6 priva Subslab Air Resample	Trip Blank
	Collection Date:			7/31/2012	7/31/2012	7/31/2012	7/31/2012	7/31/2012	9/25/2012	9/25/2012	9/25/2012	9/25/2012
USEPA Modified Method TO-15 SIM Analysis (all results in µg/m3)												
1,2-Dichloroethane	49.6	0.94		<3.5	<3.7*	<2.8*	<2.8*	1.9 J	<0.19	0.11	<0.19	<0.20
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	310000		<6.7	<7 1	<5.2	<5.2	<7.9	0.49	0.51	0.51	<0.38
Hexane	NA	7300		6.4	<3 3	<2.4	<2.4	<3.6	0.09 U	0.10 U	0.10 U	<0.18
1,1,1-Trichloroethane	991000	52000		<4.8	<5.0	<3.7	<3.7	<5.6	<0.26	<0.26	<0.26	<0.27
1,1,2-Trichloroethane	NA	1.5		<4.8*	<5.0*	<3.7*	<3.7*	<5.6*	NA	NA	NA	NA
Benzene	36.2	3.1		<2.8	<3.0	<2.2	<2.2	<3.3*	0.13	0.08	0.09 J	<0.16
Toluene	135000	52000		<3.3	<3 5	<2.6	<2.6	<3.9	0.41 U	0.57 U	1.3 U	<0.19
Ethanol	NA	NA		160	1200 J	10	8.0	630	NA	NA	NA	NA
Acetone	NA	320000		55 J	77 J	25 J	17.0	100 J	NA	NA	NA	NA
2-Propanol	NA	NA		15	86	<6.7	<6.7	110	NA	NA	NA	NA

California Human Health Screening Level for Indoor Air, Residential, January 2005 (µg/m^3)

USEPA Regional Screening Level for Residential Indoor Air, November 2012 (µg/m^3)

Notes:

Air Sample Analyses by USEPA Modified Method TO-15 SIM Analysis

* Laboratory detection limit exceeds one or more of the screening levels

NA- Not Available

J - Data results have been qualified as estimated

BOLD - Exceeds Action Level

U - Result that has been qualified as non-detect

µg/m^3 micrograms per cubic meter

<0.1 Below laboratory detection/reporting limit

COC Contaminants of Concern

USEPA United States Environmental Protection Agency

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	**Location: Modesto, CA**
Project Number: 002693.2190.01RA	**TDD:** 02-09-12-07-0007

Laboratory: Air Toxics LTD.	**Lab Project Number: 1208083A**
Sampling Dates: 7/31/2012 thru 8/1/2012	**Sample Matrix: Air**
Analytical Method: VOCs by Mod TO-15 Full Scan /SIM	**Data Reviewer: M. Song**

REVIEW AND APPROVAL:

Data Reviewer: Mindy Song (b) (6) **Date:** 9/24/12
Technical QA Reviewer: Howard (b) (6) **Date:**
Project Manager: Seth (b) (6) **Date:**

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	AC-MCH-230-IND-001	1208083A- 1A & -1B
2	AC-MCH-227-IND-003	1208083A- 3A & -3B
3	AC-MCH-223-IND-005	1208083A- 5A & -5B
4	AC-MCH-213-IND-007	1208083A- 8A & -8B
5	AC-MCH-213-IND-1007	1208083A- 9A & -9B
6	AC-MCH-Clubhouse- Amb	1208083A- 11A & -11B
7	AC-Blank-8112	1208083A- 12A & -12B
8		
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ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X Included: no problems
- * Included: problems noted in review
- O Not Included and/or Not Available
- NR Not Required
- RS Provided As Re-submission

Case Narrative:

- X Case Narrative present (EPA QA notes were provided in package)

Quality Control Summary Package:

- X Data Summary sheets
- NR Matrix Spike/Spike Duplicate Recoveries
- X Laboratory Control Sample Recoveries
- X Method Blank Summaries
- X GC/MS Tuning and Mass Calibration
- X Initial Calibration Data
- X Continuing Calibration Data
- X Surrogate Compound Recovery Summary
- X Internal Standard Area Summary

Sample and Blank Data Package Section

- X Reconstructed Ion Current (RIC) Chromatogram
- X Quantitation Reports
- X Raw and Enhanced Mass Spectra
- X Reference Mass Spectra for Target Compounds
- X Mass Spectral Library Search for TICs

Raw QC Data Package Section

- X DFTPP and/or BFB mass spectra and mass listings
- X RIC Chromatogram for Standards, LCS, and MS/MSD
- X Quantitation Reports for Standards, LCS, and MS/MSD
- X List of Instrument Detection Limits
- X Chain-of-Custody Records
- X Canister Pressure Records
- X Sample Preparation and Analysis Run Logs
- X Canister Certifications

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990), in the START QAPP, on in the site specific sampling plan.

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times, Pressure, Canister Certifications	Yes
2	GC/MS Tuning Criteria	Yes
3	Initial Calibrations	Yes
4	Continuing Calibrations	Yes
5	Laboratory Control Sample	Yes
6	Matrix Spike/Matrix Spike Duplicate	NA
7	Blanks and Background Samples	Yes
8	Internal Standards	Yes
9	Duplicate Analyses	Yes
10	Analyte Identification	Yes
11	Analyte Quantitation	No
12	Overall Assessment of Data	No

Comments: NA: Not analyzed

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

1. HOLDING TIMES, PRESSURES AND CANISTER CERTIFICATION

HOLDING TIMES	PRESSURES	CANISTER CERTIFICATION
__X__ Acceptable	__X__ Acceptable	__X__ Acceptable
____ Acceptable with qualification	____ Acceptable with qualification	____ Acceptable with qualification
____ Unacceptable	____ Unacceptable	____ Unacceptable

The sample canister were cleaned and tested according to the procedure in TO-15 method and certification was supplied except as noted under Comments. The sample canisters were pressure tested before shipment, before sampling, after sampling and prior to analysis except as noted under Comments. There were no unexpected losses of pressure in canister. Samples were pressurized prior to analysis. Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample custody unless specified.

For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the non-detected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgment. Detected results from canister with out field pressure measurement should be qualified either as estimated (J) or rejected (R) based on the reviewer's judgment. Unexplained pressure losses in canister > 10 % should be qualified and potentially rejected (R). Detected results from non-certified canisters should be qualified either as estimated (J) or rejected (R) based on the reviewer's judgment.

TO-15: 30 days (from collection) for analysis.

Comments: All samples were analyzed 23 days from collection. Pressure in laboratory for canisters and the canister certifications were acceptable.

2. GC/MS INSTRUMENT PERFORMANCE CRITERIA

Yes	**BFB (EPA 8260B) or DFTPP (EPA 8270C) has been run for every 12 hours of sample analysis per instrument.**
Yes	**The BFB or DFTPP ion abundance criteria indicated in EPA/540/G-90/004 have been met for each instrument.**

Comments:

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

3. INITIAL CALIBRATIONS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, a 5-point initial calibration was run. In addition, average Relative Response Factor (RRF), and percent relative Standard Deviation (%RSD) values were within control limits (average RRF >= 0.05; %RSD <= 30). For analytes which exceeded the %RSD control limit, associated detected results are qualified as estimated (J). If the low calibration level was not detected, the non-detected results are qualified (UJ). For analytes which exceeded the RRF control limit, associated detected results are qualified as estimated (J) and the non-detected results are qualified as rejected (R).

Comments: Percent relative standard deviation values were of target analytes were within the control limits.

4. CONTINUING CALIBRATIONS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, continuing calibrations were performed at the beginning and at the end of any group of samples and at least every 12 hours. In addition, Percent Difference (%D) values were within the control limit (%D <= 30). For analytes which exceeded the %D control limit, associated detected results are qualified as estimated (J). In cases where the %D is very high and indicates a severe loss of instrument sensitivity, the associated non-detected results may be qualified as estimated (UJ) or rejected (R) based on the professional judgment of the reviewer.

Comments: Percent difference values of target analytes were within the control limits

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

5. LABORATORY CONTROL SAMPLE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

Comments: LCS recoveries were within the control limits generated by the laboratory.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The use of matrix spikes is not required by EPA Method TO-15 and is analyzed only if it is specifically requested by the client.

_____ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
__NR__ Matrix Spike/Matrix Spike Duplicates Analyses were not requested

Matrix spike and matrix spike duplicate recoveries are used for a qualitative indication of accuracy (bias) and precision due to matrix effects. The RPD between the recoveries is used for a qualitative indication of precision. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004 or the START QAPP or in the site specific sampling plan. The relative percent difference (RPD) of 25 RPD is also specified in the QAPP, SAP, or QASP. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments: Not required or requested by this method.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

7. BLANKS AND BACKGROUND SAMPLES

__X__ Acceptable
_____ Detection Limits Adjusted

The following blanks were analyzed:
__X__ Method (preparation) Blanks
__X__ Field Blanks
_____ Instrument Blanks
_____ Rinsate Blanks
_____ Background Samples
_____ VOA Trip Blanks

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: No contamination was found in the method blank and the filed blank at reporting limit levels.

8. SURROGATE COMPOUNDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Surrogate compound recoveries for samples analyzed within a sample group must be within the limits specified in the method. If the surrogate recovery is between 10% and the lower limit, the associated detected results are qualified as estimated (J) and the non-detected results are qualified as estimated (UJ). If the surrogate recovery is <10%, the associated detected results are qualified as estimated (J) and the non-detected results are rejected (R). If the surrogate recovery is above the upper limit, the associated detected results are qualified as estimated (J). Surrogate recoveries which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: Surrogate recoveries were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

9. INTERNAL STANDARDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Internal Standard area counts for samples analyzed within a sample group must be within the range of 50% to 200% of the internal standard area for the continuing calibration. If the internal standard area is between 10% and 50% of this value, the associated detected results are qualified as estimated (J) and the non-detected results are qualified as estimated (UJ). If the internal standard area is <10% of the calibration area, both the detected and non-detected results are rejected (R). If the internal standard area is >200% of the calibration area, the associated detected results are qualified as estimated (J). Internal standards which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: The internal standard areas were within the range of 50% to 200% of the internal standard area for the continuing calibration.

10. DUPLICATE ANALYSES

Field Duplicates	Laboratory Duplicates	Laboratory Control Duplicates
__X__ Acceptable	_____Acceptable	_____ Acceptable
_____ Acceptable with qualification	_____ Acceptable with qualification	_____ Acceptable with qualification
_____ Unacceptable	_____ Unacceptable	_____ Unacceptable
_____ Not Analyzed	_____ Not Analyzed	_____ Not Analyzed

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the results as estimated (J) for any analyte whose RPD exceeds that specified in the Sampling and Analysis Plan.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	**Location: Modesto, CA**
Project Number: 002693.2190.01RA	**TDD:** 02-09-12-07-0007

Analyte (ug/m3)	AC-MCH-213-IND-007	AC-MCH-213-IND-1007	RPD (%)
Chloromethane	1.5	1.4	7
Ethanol	1100	1200	9
Acetone	76	76	0
2-Propanol	130	140	7
1,2,4-Trimethylbenzene	2.0	1.8	11
2-Butanone	12	9.8	20
Chloroform	5.9	5.7	3
Benzene	0.62	<0.59	Not calculated
1,2-Dichloroethane	3.3	3.3	0
Toluene	4.6	4.6	0
Ethyl benzene	0.46	0.50	8
m,p-Xylene	1.2	1.2	0
o-Xylene	0.48	0.44	9

Comments: All RPDs were within accepted control limits. (<35%)

11. ANALYTE IDENTIFICATION

Evaluate the ion profiles for the sample analytes and compare them to the library ion profiles provided by the laboratory. Note any identifications which are not sufficiently supported by comparison to known ion profiles.

Comments: The analyte identification was acceptable.

12. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

TO-15, Air samples:
ppbv = (analyte area)(concentration of internal standard in ppbv)

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

(internal standard area)(RF)

TO-15, Air samples:
ug/ = cubic meter (ppbv)(molecular weight of compound)
24

Comments: Analyte quantitation was acceptable. The laboratory used E qualifier on Ethanol results in samples AC-MCH-230-IND-001, AC-MCH-227-IND-003, AC-MCH-223-IND-005, AC-MCH-213-IND-007, and AC-MCH-213-IND-1007 because the concentration was exceeding the calibration range. The validator checked the peaks and they were not saturated, therefore, the results were qualified as estimated as (J).

Sample AC-MCH-227-IND-003

Benzene: ((8034) (5 ppbv)) / ((378931) (1.8117)) = 0.058513 ppbv.
(0.058513 ppbv) (3.38) = 0.1978 ppbv. Lab reported 0.20 ppbv.

Toluene: ((69728) (5 ppbv)) / ((381615) (1.59652)) = 0.57224 ppbv.
(0.57224 ppbv) (3.38) = 1.934 ppbv. Lab reported 1.9 ppbv.

1, 2 -Dichloroethane: ((3531) (5 ppbv)) / ((378931) (1.25725)) = 0.03706 ppbv.
(0.03706 ppbv) (3.38) = 0.12526 ppbv. Lab reported 0.12 ppbv.

13. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

_____ **Acceptable**
__X__ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:
_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments

on the data validity for each specific data package.

Comments: Data as reported are valid

14. USABILITY OF DATA

A. These data meet quality objectives stated in the QASP Titled -- Emergency Response and START Time Critical Quality Assurance Sampling Plan for Vapor Intrusion Assessment and Associated Sampling, Acme Cleaners, Modesto, CA dated July 30, 2012.

B These data are considered usable for the following data use objectives stated in the QASP.

1. To compare with site-specific action levels or risk-based action levels (e.g., SSL, MRL, ESL, etc) to determine if an acute or chronic health threats exist.

15. DOCUMENTATION OF LABORATORY/Field CORRECTIVE ACTION

Problem: No problem requiring corrective action was found.

Resolution: Not required.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

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Client Sample ID: AC-MCH-230-IND-001

Lab ID#: 1208083A-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081910**	**Date of Collection:**	**8/1/12 12:11:00 PM**
Dil. Factor:	**1.65**	**Date of Analysis:**	**8/19/12 03:32 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.42	0.82	2.1
Freon 114	0.16	Not Detected	1.2	Not Detected
Chloromethane	0.16	0.52	0.34	1.1
1,3-Butadiene	0.16	Not Detected	0.36	Not Detected
Bromomethane	0.82	Not Detected	3.2	Not Detected
Chloroethane	0.82	Not Detected	2.2	Not Detected
Freon 11	0.16	0.30	0.93	1.7
Ethanol	0.82	970 E J	1.6	1800 E J
Freon 113	0.16	Not Detected	1.3	Not Detected
Acetone	0.82	27	2.0	64
2-Propanol	0.82	66	2.0	160
Carbon Disulfide	0.82	Not Detected	2.6	Not Detected
3-Chloropropene	0.82	Not Detected	2.6	Not Detected
Methylene Chloride	0.33	Not Detected	1.1	Not Detected
Hexane	0.16	0.21	0.58	0.75
2-Butanone (Methyl Ethyl Ketone)	0.82	1.6	2.4	4.8
Tetrahydrofuran	0.82	Not Detected	2.4	Not Detected
Chloroform	0.16	1.6	0.80	7.8
Cyclohexane	0.16	Not Detected	0.57	Not Detected
Carbon Tetrachloride	0.16	Not Detected	1.0	Not Detected
2,2,4-Trimethylpentane	0.82	Not Detected	3.8	Not Detected
Heptane	0.16	0.24	0.68	0.97
1,2-Dichloropropane	0.16	Not Detected	0.76	Not Detected
1,4-Dioxane	0.16	Not Detected	0.59	Not Detected
Bromodichloromethane	0.16	0.20	1.1	1.3
cis-1,3-Dichloropropene	0.16	Not Detected	0.75	Not Detected
4-Methyl-2-pentanone	0.16	Not Detected	0.68	Not Detected
trans-1,3-Dichloropropene	0.16	Not Detected	0.75	Not Detected
2-Hexanone	0.82	Not Detected	3.4	Not Detected
Dibromochloromethane	0.16	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.3	Not Detected
Chlorobenzene	0.16	Not Detected	0.76	Not Detected
Styrene	0.16	0.27	0.70	1.1
Bromoform	0.16	Not Detected	1.7	Not Detected
Cumene	0.16	Not Detected	0.81	Not Detected
Propylbenzene	0.16	Not Detected	0.81	Not Detected
4-Ethyltoluene	0.16	Not Detected	0.81	Not Detected
1,3,5-Trimethylbenzene	0.16	Not Detected	0.81	Not Detected
1,2,4-Trimethylbenzene	0.16	0.20	0.81	0.98
1,3-Dichlorobenzene	0.16	Not Detected	0.99	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.99	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.85	Not Detected

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Client Sample ID: AC-MCH-230-IND-001

Lab ID#: 1208083A-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081910**	**Date of Collection:**	**8/1/12 12:11:00 PM**
Dil. Factor:	**1.65**	**Date of Analysis:**	**8/19/12 03:32 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichlorobenzene	0.16	Not Detected	0.99	Not Detected
1,2,4-Trichlorobenzene	0.82	Not Detected	6.1	Not Detected
Hexachlorobutadiene	0.82	Not Detected	8.8	Not Detected

E = Exceeds instrument calibration range.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	110	70-130

(b) (6) [redacted]

9/24/12

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Client Sample ID: AC-MCH-230-IND-001

Lab ID#: 1208083A-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081910sim**	**Date of Collection:**	**8/1/12 12:11:00 PM**
Dil. Factor:	**1.65**	**Date of Analysis:**	**8/19/12 03:32 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.042	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.065	Not Detected
1,1-Dichloroethane	0.033	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.033	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.033	Not Detected	0.18	Not Detected
Benzene	0.082	0.13	0.26	0.42
1,2-Dichloroethane	0.033	0.055	0.13	0.22
Trichloroethene	0.033	Not Detected	0.18	Not Detected
Toluene	0.033	1.5	0.12	5.5
1,1,2-Trichloroethane	0.033	Not Detected	0.18	Not Detected
Tetrachloroethene	0.033	Not Detected	0.22	Not Detected
Ethyl Benzene	0.033	0.22	0.14	0.95
m,p-Xylene	0.066	0.46	0.29	2.0
o-Xylene	0.033	0.20	0.14	0.65
1,1,2,2-Tetrachloroethane	0.033	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.65	Not Detected
Methyl tert-butyl ether	0.16	Not Detected	0.59	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	111	70-130

(b) (6)

9/24/12

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Client Sample ID: AC-MCH-227-IND-003

Lab ID#: 1208083A-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081911	**Date of Collection:**	8/1/12 12:20:00 PM
Dil. Factor:	3.38	**Date of Analysis:**	8/19/12 04:22 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.34	Not Detected	1.7	Not Detected
Freon 114	0.34	Not Detected	2.4	Not Detected
Chloromethane	0.34	0.81	0.70	1.7
1,3-Butadiene	0.34	Not Detected	0.75	Not Detected
Bromomethane	1.7	Not Detected	6.6	Not Detected
Chloroethane	1.7	Not Detected	4.4	Not Detected
Freon 11	0.34	0.36	1.9	2.0
Ethanol	1.7	780 E J	3.2	1500 E J
Freon 113	0.34	Not Detected	2.6	Not Detected
Acetone	1.7	33	4.0	79
2-Propanol	1.7	20	4.2	49
Carbon Disulfide	1.7	Not Detected	5.3	Not Detected
3-Chloropropene	1.7	Not Detected	5.3	Not Detected
Methylene Chloride	0.68	Not Detected	2.3	Not Detected
Hexane	0.34	Not Detected	1.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.7	Not Detected	5.0	Not Detected
Tetrahydrofuran	1.7	Not Detected	5.0	Not Detected
Chloroform	0.34	0.79	1.6	3.9
Cyclohexane	0.34	Not Detected	1.2	Not Detected
Carbon Tetrachloride	0.34	Not Detected	2.1	Not Detected
2,2,4-Trimethylpentane	1.7	Not Detected	7.9	Not Detected
Heptane	0.34	Not Detected	1.4	Not Detected
1,2-Dichloropropane	0.34	Not Detected	1.6	Not Detected
1,4-Dioxane	0.34	Not Detected	1.2	Not Detected
Bromodichloromethane	0.34	Not Detected	2.3	Not Detected
cis-1,3-Dichloropropene	0.34	Not Detected	1.5	Not Detected
4-Methyl-2-pentanone	0.34	Not Detected	1.4	Not Detected
trans-1,3-Dichloropropene	0.34	Not Detected	1.5	Not Detected
2-Hexanone	1.7	Not Detected	6.9	Not Detected
Dibromochloromethane	0.34	Not Detected	2.9	Not Detected
1,2-Dibromoethane (EDB)	0.34	Not Detected	2.6	Not Detected
Chlorobenzene	0.34	Not Detected	1.6	Not Detected
Styrene	0.34	Not Detected	1.4	Not Detected
Bromoform	0.34	Not Detected	3.5	Not Detected
Cumene	0.34	Not Detected	1.7	Not Detected
Propylbenzene	0.34	Not Detected	1.7	Not Detected
4-Ethyltoluene	0.34	Not Detected	1.7	Not Detected
1,3,5-Trimethylbenzene	0.34	Not Detected	1.7	Not Detected
1,2,4-Trimethylbenzene	0.34	Not Detected	1.7	Not Detected
1,3-Dichlorobenzene	0.34	Not Detected	2.0	Not Detected
1,4-Dichlorobenzene	0.34	Not Detected	2.0	Not Detected
alpha-Chlorotoluene	0.34	Not Detected	1.7	Not Detected

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Client Sample ID: AC-MCH-227-IND-003

Lab ID#: 1208083A-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081911	Date of Collection:	8/1/12 12:20:00 PM
Dil. Factor:	3.38	Date of Analysis:	8/19/12 04:22 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichlorobenzene	0.34	Not Detected	2.0	Not Detected
1,2,4-Trichlorobenzene	1.7	Not Detected	12	Not Detected
Hexachlorobutadiene	1.7	Not Detected	18	Not Detected

E = Exceeds instrument calibration range.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	104	70-130

(b) (6) [redacted]

9/24/12

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Client Sample ID: AC-MCH-227-IND-003

Lab ID#: 1208083A-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081911sim	Date of Collection:	8/1/12 12:20:00 PM
Dil. Factor:	3.38	Date of Analysis:	8/19/12 04:22 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.034	Not Detected	0.086	Not Detected
1,1-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1-Dichloroethane	0.068	Not Detected	0.27	Not Detected
cis-1,2-Dichloroethene	0.068	Not Detected	0.27	Not Detected
1,1,1-Trichloroethane	0.068	Not Detected	0.37	Not Detected
Benzene	0.17	0.20	0.54	0.63
1,2-Dichloroethane	0.068	0.12	0.27	0.51
Trichloroethene	0.068	Not Detected	0.36	Not Detected
Toluene	0.068	1.9	0.25	7.3
1,1,2-Trichloroethane	0.068	Not Detected	0.37	Not Detected
Tetrachloroethene	0.068	Not Detected	0.46	Not Detected
Ethyl Benzene	0.068	0.15	0.29	0.64
m,p-Xylene	0.14	0.31	0.59	1.3
o-Xylene	0.068	0.12	0.29	0.50
1,1,2,2-Tetrachloroethane	0.068	Not Detected	0.46	Not Detected
trans-1,2-Dichloroethene	0.34	Not Detected	1.3	Not Detected
Methyl tert-butyl ether	0.34	Not Detected	1.2	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	105	70-130

(b) (6) [redacted]

8/24/12

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Client Sample ID: AC-MCH-223-IND-005

Lab ID#: 1208083A-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081912**	**Date of Collection:**	**8/1/12 12:22:00 PM**
Dil. Factor:	**2.18**	**Date of Analysis:**	**8/19/12 05:13 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.22	0.40	1.1	2.0
Freon 114	0.22	Not Detected	1.5	Not Detected
Chloromethane	0.22	0.58	0.45	1.2
1,3-Butadiene	0.22	Not Detected	0.48	Not Detected
Bromomethane	1.1	Not Detected	4.2	Not Detected
Chloroethane	1.1	Not Detected	2.9	Not Detected
Freon 11	0.22	0.39	1.2	2.2
Ethanol	1.1	450 E J	2.0	850 E J
Freon 113	0.22	Not Detected	1.7	Not Detected
Acetone	1.1	24	2.6	56
2-Propanol	1.1	25	2.7	62
Carbon Disulfide	1.1	Not Detected	3.4	Not Detected
3-Chloropropene	1.1	Not Detected	3.4	Not Detected
Methylene Chloride	0.44	Not Detected	1.5	Not Detected
Hexane	0.22	0.30	0.77	1.0
2-Butanone (Methyl Ethyl Ketone)	1.1	1.7	3.2	5.1
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	0.22	0.44	1.1	2.1
Cyclohexane	0.22	Not Detected	0.75	Not Detected
Carbon Tetrachloride	0.22	Not Detected	1.4	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.1	Not Detected
Heptane	0.22	0.88	0.89	3.6
1,2-Dichloropropane	0.22	Not Detected	1.0	Not Detected
1,4-Dioxane	0.22	Not Detected	0.78	Not Detected
Bromodichloromethane	0.22	Not Detected	1.5	Not Detected
cis-1,3-Dichloropropene	0.22	Not Detected	0.99	Not Detected
4-Methyl-2-pentanone	0.22	Not Detected	0.89	Not Detected
trans-1,3-Dichloropropene	0.22	Not Detected	0.99	Not Detected
2-Hexanone	1.1	Not Detected	4.5	Not Detected
Dibromochloromethane	0.22	Not Detected	1.8	Not Detected
1,2-Dibromoethane (EDB)	0.22	Not Detected	1.7	Not Detected
Chlorobenzene	0.22	Not Detected	1.0	Not Detected
Styrene	0.22	0.36	0.93	1.5
Bromoform	0.22	Not Detected	2.2	Not Detected
Cumene	0.22	Not Detected	1.1	Not Detected
Propylbenzene	0.22	Not Detected	1.1	Not Detected
4-Ethyltoluene	0.22	Not Detected	1.1	Not Detected
1,3,5-Trimethylbenzene	0.22	Not Detected	1.1	Not Detected
1,2,4-Trimethylbenzene	0.22	Not Detected	1.1	Not Detected
1,3-Dichlorobenzene	0.22	Not Detected	1.3	Not Detected
1,4-Dichlorobenzene	0.22	Not Detected	1.3	Not Detected
alpha-Chlorotoluene	0.22	Not Detected	1.1	Not Detected

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Client Sample ID: AC-MCH-223-IND-005

Lab ID#: 1208083A-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081912	**Date of Collection:**	8/1/12 12:22:00 PM
Dil. Factor:	2.18	**Date of Analysis:**	8/19/12 05:13 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichlorobenzene	0.22	Not Detected	1.3	Not Detected
1,2,4-Trichlorobenzene	1.1	Not Detected	8.1	Not Detected
Hexachlorobutadiene	1.1	Not Detected	12	Not Detected

E = Exceeds instrument calibration range.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	106	70-130

(b) (6)

9/24/12

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Client Sample ID: AC-MCH-223-IND-005

Lab ID#: 1208083A-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081912sim**	**Date of Collection:**	**8/1/12 12:22:00 PM**
Dil. Factor:	**2.18**	**Date of Analysis:**	**8/19/12 05:13 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.022	Not Detected	0.056	Not Detected
1,1-Dichloroethene	0.022	Not Detected	0.086	Not Detected
1,1-Dichloroethane	0.044	Not Detected	0.18	Not Detected
cis-1,2-Dichloroethene	0.044	Not Detected	0.17	Not Detected
1,1,1-Trichloroethane	0.044	Not Detected	0.24	Not Detected
Benzene	0.11	0.26	0.35	0.83
1,2-Dichloroethane	0.044	0.21	0.18	0.85
Trichloroethene	0.044	Not Detected	0.23	Not Detected
Toluene	0.044	6.8	0.16	26
1,1,2-Trichloroethane	0.044	Not Detected	0.24	Not Detected
Tetrachloroethene	0.044	Not Detected	0.30	Not Detected
Ethyl Benzene	0.044	0.21	0.19	0.93
m,p-Xylene	0.087	0.47	0.38	2.0
o-Xylene	0.044	0.14	0.19	0.60
1,1,2,2-Tetrachloroethane	0.044	Not Detected	0.30	Not Detected
trans-1,2-Dichloroethene	0.22	Not Detected	0.86	Not Detected
Methyl tert-butyl ether	0.22	Not Detected	0.78	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	108	70-130

(b) (6) [redacted]

8/24/12

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Client Sample ID: AC-MCH-213-IND-007

Lab ID#: 1208083A-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081913	Date of Collection:	8/1/12 12:25:00 PM
Dil. Factor:	3.68	Date of Analysis:	8/19/12 05:52 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.37	Not Detected	1.8	Not Detected
Freon 114	0.37	Not Detected	2.6	Not Detected
Chloromethane	0.37	0.72	0.76	1.5
1,3-Butadiene	0.37	Not Detected	0.81	Not Detected
Bromomethane	1.8	Not Detected	7.1	Not Detected
Chloroethane	1.8	Not Detected	4.8	Not Detected
Freon 11	0.37	Not Detected	2.1	Not Detected
Ethanol	1.8	610 E J	3.5	1100 E J
Freon 113	0.37	Not Detected	2.8	Not Detected
Acetone	1.8	32	4.4	76
2-Propanol	1.8	54	4.5	130
Carbon Disulfide	1.8	Not Detected	5.7	Not Detected
3-Chloropropene	1.8	Not Detected	5.8	Not Detected
Methylene Chloride	0.74	Not Detected	2.6	Not Detected
Hexane	0.37	Not Detected	1.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.8	3.9	5.4	12
Tetrahydrofuran	1.8	Not Detected	5.4	Not Detected
Chloroform	0.37	1.2	1.8	5.9
Cyclohexane	0.37	Not Detected	1.3	Not Detected
Carbon Tetrachloride	0.37	Not Detected	2.3	Not Detected
2,2,4-Trimethylpentane	1.8	Not Detected	8.6	Not Detected
Heptane	0.37	Not Detected	1.5	Not Detected
1,2-Dichloropropane	0.37	Not Detected	1.7	Not Detected
1,4-Dioxane	0.37	Not Detected	1.3	Not Detected
Bromodichloromethane	0.37	Not Detected	2.5	Not Detected
cis-1,3-Dichloropropene	0.37	Not Detected	1.7	Not Detected
4-Methyl-2-pentanone	0.37	Not Detected	1.5	Not Detected
trans-1,3-Dichloropropene	0.37	Not Detected	1.7	Not Detected
2-Hexanone	1.8	Not Detected	7.5	Not Detected
Dibromochloromethane	0.37	Not Detected	3.1	Not Detected
1,2-Dibromoethane (EDB)	0.37	Not Detected	2.8	Not Detected
Chlorobenzene	0.37	Not Detected	1.7	Not Detected
Styrene	0.37	Not Detected	1.6	Not Detected
Bromoform	0.37	Not Detected	3.8	Not Detected
Cumene	0.37	Not Detected	1.8	Not Detected
Propylbenzene	0.37	Not Detected	1.8	Not Detected
4-Ethyltoluene	0.37	Not Detected	1.8	Not Detected
1,3,5-Trimethylbenzene	0.37	Not Detected	1.8	Not Detected
1,2,4-Trimethylbenzene	0.37	0.41	1.8	2.0
1,3-Dichlorobenzene	0.37	Not Detected	2.2	Not Detected
1,4-Dichlorobenzene	0.37	Not Detected	2.2	Not Detected
alpha-Chlorotoluene	0.37	Not Detected	1.9	Not Detected

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Client Sample ID: AC-MCH-213-IND-007

Lab ID#: 1208083A-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081913	Date of Collection:	8/1/12 12:25:00 PM
Dil. Factor:	3.68	Date of Analysis:	8/19/12 05:52 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichlorobenzene	0.37	Not Detected	2.2	Not Detected
1,2,4-Trichlorobenzene	1.8	Not Detected	14	Not Detected
Hexachlorobutadiene	1.8	Not Detected	20	Not Detected

E = Exceeds instrument calibration range.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	107	70-130

(b) (6)

9/24/12

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Client Sample ID: AC-MCH-213-IND-007

Lab ID#: 1208083A-08B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081913sim	Date of Collection:	8/1/12 12:25:00 PM
Dil. Factor:	3.68	Date of Analysis:	8/19/12 05:52 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.037	Not Detected	0.094	Not Detected
1,1-Dichloroethene	0.037	Not Detected	0.14	Not Detected
1,1-Dichloroethane	0.074	Not Detected	0.30	Not Detected
cis-1,2-Dichloroethene	0.074	Not Detected	0.29	Not Detected
1,1,1-Trichloroethane	0.074	Not Detected	0.40	Not Detected
Benzene	0.18	0.19	0.59	0.62
1,2-Dichloroethane	0.074	0.81	0.30	3.3
Trichloroethene	0.074	Not Detected	0.40	Not Detected
Toluene	0.074	1.2	0.28	4.6
1,1,2-Trichloroethane	0.074	Not Detected	0.40	Not Detected
Tetrachloroethene	0.074	Not Detected	0.50	Not Detected
Ethyl Benzene	0.074	0.10	0.32	0.46
m,p-Xylene	0.15	0.27	0.64	1.2
o-Xylene	0.074	0.11	0.32	0.48
1,1,2,2-Tetrachloroethane	0.074	Not Detected	0.50	Not Detected
trans-1,2-Dichloroethene	0.37	Not Detected	1.4	Not Detected
Methyl tert-butyl ether	0.37	Not Detected	1.3	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	107	70-130

(b) (6) [redacted]

9/24/12

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Client Sample ID: AC-MCH-213-IND-1007

Lab ID#: 1208083A-09A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081914**	**Date of Collection:**	**8/1/12 12:25:00 PM**
Dil. Factor:	**3.72**	**Date of Analysis:**	**8/19/12 06:30 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.37	Not Detected	1.8	Not Detected
Freon 114	0.37	Not Detected	2.6	Not Detected
Chloromethane	0.37	0.68	0.77	1.4
1,3-Butadiene	0.37	Not Detected	0.82	Not Detected
Bromomethane	1.9	Not Detected	7.2	Not Detected
Chloroethane	1.9	Not Detected	4.9	Not Detected
Freon 11	0.37	Not Detected	2.1	Not Detected
Ethanol	1.9	640 E J	3.5	1200 E J
Freon 113	0.37	Not Detected	2.8	Not Detected
Acetone	1.9	32	4.4	76
2-Propanol	1.9	55	4.6	140
Carbon Disulfide	1.9	Not Detected	5.8	Not Detected
3-Chloropropene	1.9	Not Detected	5.8	Not Detected
Methylene Chloride	0.74	Not Detected	2.6	Not Detected
Hexane	0.37	Not Detected	1.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.9	3.3	5.5	9.8
Tetrahydrofuran	1.9	Not Detected	5.5	Not Detected
Chloroform	0.37	1.2	1.8	5.7
Cyclohexane	0.37	Not Detected	1.3	Not Detected
Carbon Tetrachloride	0.37	Not Detected	2.3	Not Detected
2,2,4-Trimethylpentane	1.9	Not Detected	8.7	Not Detected
Heptane	0.37	Not Detected	1.5	Not Detected
1,2-Dichloropropane	0.37	Not Detected	1.7	Not Detected
1,4-Dioxane	0.37	Not Detected	1.3	Not Detected
Bromodichloromethane	0.37	Not Detected	2.5	Not Detected
cis-1,3-Dichloropropene	0.37	Not Detected	1.7	Not Detected
4-Methyl-2-pentanone	0.37	Not Detected	1.5	Not Detected
trans-1,3-Dichloropropene	0.37	Not Detected	1.7	Not Detected
2-Hexanone	1.9	Not Detected	7.6	Not Detected
Dibromochloromethane	0.37	Not Detected	3.2	Not Detected
1,2-Dibromoethane (EDB)	0.37	Not Detected	2.8	Not Detected
Chlorobenzene	0.37	Not Detected	1.7	Not Detected
Styrene	0.37	Not Detected	1.6	Not Detected
Bromoform	0.37	Not Detected	3.8	Not Detected
Cumene	0.37	Not Detected	1.8	Not Detected
Propylbenzene	0.37	Not Detected	1.8	Not Detected
4-Ethyltoluene	0.37	Not Detected	1.8	Not Detected
1,3,5-Trimethylbenzene	0.37	Not Detected	1.8	Not Detected
1,2,4-Trimethylbenzene	0.37	0.37	1.8	1.8
1,3-Dichlorobenzene	0.37	Not Detected	2.2	Not Detected
1,4-Dichlorobenzene	0.37	Not Detected	2.2	Not Detected
alpha-Chlorotoluene	0.37	Not Detected	1.9	Not Detected

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Client Sample ID: AC-MCH-213-IND-1007

Lab ID#: 1208083A-09A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081914**	**Date of Collection:**	**8/1/12 12:25:00 PM**
Dil. Factor:	**3.72**	**Date of Analysis:**	**8/19/12 06:30 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichlorobenzene	0.37	Not Detected	2.2	Not Detected
1,2,4-Trichlorobenzene	1.9	Not Detected	14	Not Detected
Hexachlorobutadiene	1.9	Not Detected	20	Not Detected

E = Exceeds instrument calibration range.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	102	70-130

(b) (6)

9/24/12

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Client Sample ID: AC-MCH-213-IND-1007

Lab ID#: 1208083A-09B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081914sim**	**Date of Collection:**	**8/1/12 12:25:00 PM**
Dil. Factor:	**3.72**	**Date of Analysis:**	**8/19/12 06:30 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.037	Not Detected	0.095	Not Detected
1,1-Dichloroethene	0.037	Not Detected	0.15	Not Detected
1,1-Dichloroethane	0.074	Not Detected	0.30	Not Detected
cis-1,2-Dichloroethene	0.074	Not Detected	0.29	Not Detected
1,1,1-Trichloroethane	0.074	Not Detected	0.40	Not Detected
Benzene	0.19	Not Detected	0.59	Not Detected
1,2-Dichloroethane	0.074	0.82	0.30	3.3
Trichloroethene	0.074	Not Detected	0.40	Not Detected
Toluene	0.074	1.2	0.28	4.6
1,1,2-Trichloroethane	0.074	Not Detected	0.40	Not Detected
Tetrachloroethene	0.074	Not Detected	0.50	Not Detected
Ethyl Benzene	0.074	0.12	0.32	0.50
m,p-Xylene	0.15	0.26	0.65	1.2
o-Xylene	0.074	0.10	0.32	0.44
1,1,2,2-Tetrachloroethane	0.074	Not Detected	0.51	Not Detected
trans-1,2-Dichloroethene	0.37	Not Detected	1.5	Not Detected
Methyl tert-butyl ether	0.37	Not Detected	1.3	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	106	70-130

(b) (6) 9/24/12

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Client Sample ID: AC-MCH-Clubhouse-Amb

Lab ID#: 1208083A-11A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081915**	**Date of Collection:**	**8/1/12 12:05:00 PM**
Dil. Factor:	**2.01**	**Date of Analysis:**	**8/19/12 07:20 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.20	0.38	0.99	1.9
Freon 114	0.20	Not Detected	1.4	Not Detected
Chloromethane	0.20	0.39	0.42	0.81
1,3-Butadiene	0.20	Not Detected	0.44	Not Detected
Bromomethane	1.0	Not Detected	3.9	Not Detected
Chloroethane	1.0	Not Detected	2.6	Not Detected
Freon 11	0.20	Not Detected	1.1	Not Detected
Ethanol	1.0	12	1.9	22
Freon 113	0.20	Not Detected	1.5	Not Detected
Acetone	1.0	10	2.4	25
2-Propanol	1.0	Not Detected	2.5	Not Detected
Carbon Disulfide	1.0	Not Detected	3.1	Not Detected
3-Chloropropene	1.0	Not Detected	3.1	Not Detected
Methylene Chloride	0.40	Not Detected	1.4	Not Detected
Hexane	0.20	Not Detected	0.71	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.0	Not Detected	3.0	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	0.20	Not Detected	0.98	Not Detected
Cyclohexane	0.20	Not Detected	0.69	Not Detected
Carbon Tetrachloride	0.20	Not Detected	1.3	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.7	Not Detected
Heptane	0.20	Not Detected	0.82	Not Detected
1,2-Dichloropropane	0.20	Not Detected	0.93	Not Detected
1,4-Dioxane	0.20	Not Detected	0.72	Not Detected
Bromodichloromethane	0.20	Not Detected	1.3	Not Detected
cis-1,3-Dichloropropene	0.20	Not Detected	0.91	Not Detected
4-Methyl-2-pentanone	0.20	Not Detected	0.82	Not Detected
trans-1,3-Dichloropropene	0.20	Not Detected	0.91	Not Detected
2-Hexanone	1.0	Not Detected	4.1	Not Detected
Dibromochloromethane	0.20	Not Detected	1.7	Not Detected
1,2-Dibromoethane (EDB)	0.20	Not Detected	1.5	Not Detected
Chlorobenzene	0.20	Not Detected	0.92	Not Detected
Styrene	0.20	Not Detected	0.86	Not Detected
Bromoform	0.20	Not Detected	2.1	Not Detected
Cumene	0.20	Not Detected	0.99	Not Detected
Propylbenzene	0.20	Not Detected	0.99	Not Detected
4-Ethyltoluene	0.20	Not Detected	0.99	Not Detected
1,3,5-Trimethylbenzene	0.20	Not Detected	0.99	Not Detected
1,2,4-Trimethylbenzene	0.20	Not Detected	0.99	Not Detected
1,3-Dichlorobenzene	0.20	Not Detected	1.2	Not Detected
1,4-Dichlorobenzene	0.20	Not Detected	1.2	Not Detected
alpha-Chlorotoluene	0.20	Not Detected	1.0	Not Detected

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Client Sample ID: AC-MCH-Clubhouse-Amb

Lab ID#: 1208083A-11A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081915**	**Date of Collection:**	**8/1/12 12:05:00 PM**
Dil. Factor:	**2.01**	**Date of Analysis:**	**8/19/12 07:20 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichlorobenzene	0.20	Not Detected	1.2	Not Detected
1,2,4-Trichlorobenzene	1.0	Not Detected	7.4	Not Detected
Hexachlorobutadiene	1.0	Not Detected	11	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	103	70-130

(b) (6)

9/24/12

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Client Sample ID: AC-MCH-Clubhouse-Amb

Lab ID#: 1208083A-11B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081915sim	Date of Collection:	8/1/12 12:05:00 PM
Dil. Factor:	2.01	Date of Analysis:	8/19/12 07:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.020	Not Detected	0.051	Not Detected
1,1-Dichloroethene	0.020	Not Detected	0.080	Not Detected
1,1-Dichloroethane	0.040	Not Detected	0.16	Not Detected
cis-1,2-Dichloroethene	0.040	Not Detected	0.16	Not Detected
1,1,1-Trichloroethane	0.040	Not Detected	0.22	Not Detected
Benzene	0.10	0.14	0.32	0.43
1,2-Dichloroethane	0.040	Not Detected	0.16	Not Detected
Trichloroethene	0.040	Not Detected	0.22	Not Detected
Toluene	0.040	0.46	0.15	1.7
1,1,2-Trichloroethane	0.040	Not Detected	0.22	Not Detected
Tetrachloroethene	0.040	Not Detected	0.27	Not Detected
Ethyl Benzene	0.040	0.076	0.17	0.33
m,p-Xylene	0.080	0.25	0.35	1.1
o-Xylene	0.040	0.084	0.17	0.36
1,1,2,2-Tetrachloroethane	0.040	Not Detected	0.28	Not Detected
trans-1,2-Dichloroethene	0.20	Not Detected	0.80	Not Detected
Methyl tert-butyl ether	0.20	Not Detected	0.72	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	104	70-130

(b) (6)

9/24/12

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Client Sample ID: AC-Blank-8112

Lab ID#: 1208083A-12A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081916	**Date of Collection:**	8/1/12 12:45:00 PM
Dil. Factor:	1.00	**Date of Analysis:**	8/19/12 08:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.10	Not Detected	0.49	Not Detected
Freon 114	0.10	Not Detected	0.70	Not Detected
Chloromethane	0.10	Not Detected	0.21	Not Detected
1,3-Butadiene	0.10	Not Detected	0.22	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Ethanol	0.50	Not Detected	0.94	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
2-Propanol	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
Hexane	0.10	Not Detected	0.35	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
Cyclohexane	0.10	Not Detected	0.34	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Heptane	0.10	Not Detected	0.41	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
1,4-Dioxane	0.10	Not Detected	0.36	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
1,2-Dibromoethane (EDB)	0.10	Not Detected	0.77	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
Cumene	0.10	Not Detected	0.49	Not Detected
Propylbenzene	0.10	Not Detected	0.49	Not Detected
4-Ethyltoluene	0.10	Not Detected	0.49	Not Detected
1,3,5-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,3-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,4-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
alpha-Chlorotoluene	0.10	Not Detected	0.52	Not Detected

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Client Sample ID: AC-Blank-8112

Lab ID#: 1208083A-12A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081916**	**Date of Collection:**	**8/1/12 12:45:00 PM**
Dil. Factor:	**1.00**	**Date of Analysis:**	**8/19/12 08:01 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,2,4-Trichlorobenzene	0.50	Not Detected	3.7	Not Detected
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	93	70-130

(b) (6)

8/24/12

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Client Sample ID: AC-Blank-8112

Lab ID#: 1208083A-12B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081916sim	Date of Collection:	8/1/12 12:45:00 PM
Dil. Factor:	1.00	Date of Analysis:	8/19/12 08:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Benzene	0.050	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
1,1,2-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected
1,1,2,2-Tetrachloroethane	0.020	Not Detected	0.14	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	99	70-130

(b) (6)

8/24/12

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Client Sample ID: Lab Blank

Lab ID#: 1208083A-13A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081906**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/19/12 12:29 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.10	Not Detected	0.49	Not Detected
Freon 114	0.10	Not Detected	0.70	Not Detected
Chloromethane	0.10	Not Detected	0.21	Not Detected
1,3-Butadiene	0.10	Not Detected	0.22	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Ethanol	0.50	Not Detected	0.94	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
2-Propanol	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
Hexane	0.10	Not Detected	0.35	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
Cyclohexane	0.10	Not Detected	0.34	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Heptane	0.10	Not Detected	0.41	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
1,4-Dioxane	0.10	Not Detected	0.36	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
1,2-Dibromoethane (EDB)	0.10	Not Detected	0.77	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
Cumene	0.10	Not Detected	0.49	Not Detected
Propylbenzene	0.10	Not Detected	0.49	Not Detected
4-Ethyltoluene	0.10	Not Detected	0.49	Not Detected
1,3,5-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,3-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,4-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
alpha-Chlorotoluene	0.10	Not Detected	0.52	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1208083A-13A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	e081906	**Date of Collection: NA**	
Dil. Factor:	1.00	**Date of Analysis: 8/19/12 12:29 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,2,4-Trichlorobenzene	0.50	Not Detected	3.7	Not Detected
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	99	70-130

(b) (6)

8/24/12

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Client Sample ID: Lab Blank

Lab ID#: 1208083A-13B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**e081906sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/19/12 12:29 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Benzene	0.050	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
1,1,2-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected
1,1,2,2-Tetrachloroethane	0.020	Not Detected	0.14	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	98	70-130

(b) (6)

9/24/12

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

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Page ____ of ____

0614 of 0650

Project Manager (b) (6)
Collected by: (Print and
Company Ecology & Environment Email (b) (6)
Address 1940 Webster St City Oakland State CA Zip 94612
Phone 415-264-8165 Fax

Project Info:
P.O. #
Project # 002693-2190-01RA
Project Name Acme Cleaners

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	AC-MCH-230-IND-001	5763	7/31-8/1	1134-1214	TO-15 Low	-29.45	-5.45		
	AC-MCH-230-TS-002	2036	7/31/12	1533	TO-15-MED	-26.35	-6.90		
03A	AC-MCH-227-IND-003	4199	7/31-8/1	1224-1220	TO-15-Low	-26.55	-6.35		
	AC-MCH-227-TS-004	2188	7/31/12	1324	TO-15 MED	-29.50	-0.55		
05A	AC-MCH-223-IND-005	34000	7/31-8/1	1348-1222	TO-15-Low	-29.55	-11.50		
	AC-MCH-223-TS-006	37421	7/31/12	1437	TO-15 MED	-29.25	-0.05		
	AC-MCH-223-TS-1006	37681	7/31/12	1437	TO-15-Mid	-29.05	-0.10		
08A	AC-MCH-IND-007	36045	7/31-8/1	1420-1225	TO-15 Low	-29.65	-8.0		
02A	AC-MCH-213-IND-1007	34346	7/31-8/1	1420-1225	TO-15 Low	-29.55	-7.95		
	AC-MCH-213-TS-008	34643	7/31/12	1453	TO-15-Mid	-29.25	0		

Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time
(b) (6) 8/3/12 1017	(b) (6) 8-3-12 1017
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time
Relinquished by: (signature) Date/Time	Received by: (signature) Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	AVL Dropoff		NA	Good	Yes No None	1208083

Form 1293 rev.11

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

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FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ____ of ____

Project Manager (b) (6)

Collected by: (Print and s

Company Ecology + Environment Email (b) (6)

Address 1 Rochester St City Oakland State CA Zip 94612

Phone 415-264-9165 Fax

Project Info:
P.O. #
Project # 002693-2190-01RA
Project Name Acme Cleaners

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
11A	AC-MW4-Clubhouse-AMB	946	7/31-8/1	1512-1255	TO 15 Low	-29.50	-11.65		
12A	AC-Blank-8112	23925	1	1245		-29.65	-21.85		

(b) (6) gnature) Date/Time 8/3/12 1017

(b) (6) 8-3-12 1017

Relinquished by: (signature) Date/Time

Received by: (signature) Date/Time

Relinquished by: (signature) Date/Time

Received by: (signature) Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	ATL Property		NA	Good	Yes No None	1208083

Form 1293 rev.11

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	**Location: Modesto, CA**
Project Number: 002693.2190.01RA	**TDD:** 02-09-12-07-0007

Laboratory: Air Toxics LTD.	**Lab Project Number: 1208083B**
Sampling Dates: 7/31/2012	**Sample Matrix: Air**
Analytical Method: VOCs by Mod TO-15 Full Scan	**Data Reviewer: M. Song**

REVIEW AND APPROVAL:

Data Reviewer: (b) (6) **Date:** 9/24/12
Technical QA Reviewer: Howard (b) (6) **Date:**
Project Manager: Seth (b) (6) **Date:**

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	AC-MCH-230-TS-002	1208083B- 02A
2	AC-MCH-227-TS-004	1208083B -04A
3	AC-MCH-223-TS-006	1208083B-06A
4	AC-MCH-223-TS-1006	1208083B-07A
5	AC-MCH-213-TS-008	1208083B-10A
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20		

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X — Included: no problems
- * — Included: problems noted in review
- O — Not Included and/or Not Available
- NR — Not Required
- RS — Provided As Re-submission

Case Narrative:

- X — Case Narrative present (EPA QA notes were provided in package)

Quality Control Summary Package:

- X — Data Summary sheets
- NR — Matrix Spike/Spike Duplicate Recoveries
- X — Laboratory Control Sample Recoveries
- X — Method Blank Summaries
- X — GC/MS Tuning and Mass Calibration
- X — Initial Calibration Data
- X — Continuing Calibration Data
- X — Surrogate Compound Recovery Summary
- X — Internal Standard Area Summary

Sample and Blank Data Package Section

- X — Reconstructed Ion Current (RIC) Chromatogram
- X — Quantitation Reports
- X — Raw and Enhanced Mass Spectra
- X — Reference Mass Spectra for Target Compounds
- X — Mass Spectral Library Search for TICs

Raw QC Data Package Section

- X — DFTPP and/or BFB mass spectra and mass listings
- X — RIC Chromatogram for Standards, LCS, and MS/MSD
- X — Quantitation Reports for Standards, LCS, and MS/MSD
- X — List of Instrument Detection Limits
- X — Chain-of-Custody Records
- X — Canister Pressure Records
- X — Sample Preparation and Analysis Run Logs
- X — Canister Certifications

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990), in the START QAPP, on in the site specific sampling plan.

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times, Pressure, Canister Certifications	Yes
2	GC/MS Tuning Criteria	Yes
3	Initial Calibrations	Yes
4	Continuing Calibrations	Yes
5	Laboratory Control Sample	Yes
6	Matrix Spike/Matrix Spike Duplicate	NA
7	Blanks and Background Samples	Yes
8	Internal Standards	Yes
9	Duplicate Analyses	No
10	Analyte Identification	Yes
11	Analyte Quantitation	No
12	Overall Assessment of Data	No

Comments: NA: Not analyzed

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

1. HOLDING TIMES, PRESSURES AND CANISTER CERTIFICATION

HOLDING TIMES	PRESSURES	CANISTER CERTIFICATION
X Acceptable	X Acceptable	X Acceptable
Acceptable with qualification	Acceptable with qualification	Acceptable with qualification
Unacceptable	Unacceptable	Unacceptable

The sample canister were cleaned and tested according to the procedure in TO-15 method and certification was supplied except as noted under Comments. The sample canisters were pressure tested before shipment, before sampling, after sampling and prior to analysis except as noted under Comments. There were no unexpected losses of pressure in canister. Samples were pressurized prior to analysis. Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample custody unless specified.

For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the non-detected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgment. Detected results from canister with out field pressure measurement should be qualified either as estimated (J) or rejected (R) based on the reviewer's judgment. Unexplained pressure losses in canister > 10 % should be qualified and potentially rejected (R). Detected results from non-certified canisters should be qualified either as estimated (J) or rejected (R) based on the reviewer's judgment.

TO-15: 30 days (from collection) for analysis.

Comments: All samples were analyzed 7 to 8 days from collection. Pressure in laboratory for canisters and the canister certifications were acceptable.

2. GC/MS INSTRUMENT PERFORMANCE CRITERIA

Yes	BFB (EPA 8260B) or DFTPP (EPA 8270C) has been run for every 12 hours of sample analysis per instrument.
Yes	The BFB or DFTPP ion abundance criteria indicated in EPA/540/G-90/004 have been met for each instrument.

Comments:

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

3. INITIAL CALIBRATIONS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, a 5-point initial calibration was run. In addition, average Relative Response Factor (RRF), and percent relative Standard Deviation (%RSD) values were within control limits (average RRF >= 0.05; %RSD <= 30). For analytes which exceeded the %RSD control limit, associated detected results are qualified as estimated (J). If the low calibration level was not detected, the non-detected results are qualified (UJ). For analytes which exceeded the RRF control limit, associated detected results are qualified as estimated (J) and the non-detected results are qualified as rejected (R).

Comments: Percent relative standard deviation values were of target analytes were within the control limits.

4. CONTINUING CALIBRATIONS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Unless flagged below, continuing calibrations were performed at the beginning and at the end of any group of samples and at least every 12 hours. In addition, Percent Difference (%D) values were within the control limit (%D <= 30). For analytes which exceeded the %D control limit, associated detected results are qualified as estimated (J). In cases where the %D is very high and indicates a severe loss of instrument sensitivity, the associated non-detected results may be qualified as estimated (UJ) or rejected (R) based on the professional judgment of the reviewer.

Comments: Percent difference values of target analytes were within the control limits

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

5. LABORATORY CONTROL SAMPLE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

Comments: LCS recoveries were within the control limits generated by the laboratory.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The use of matrix spikes is not required by EPA Method TO-15 and is analyzed only if it is specifically requested by the client.

_____ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
__NR__ Matrix Spike/Matrix Spike Duplicates Analyses were not requested

Matrix spike and matrix spike duplicate recoveries are used for a qualitative indication of accuracy (bias) and precision due to matrix effects. The RPD between the recoveries is used for a qualitative indication of precision. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004 or the START QAPP or in the site specific sampling plan. The relative percent difference (RPD) of 25 RPD is also specified in the QAPP, SAP, or QASP. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments: Not required or requested by this method.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

7. BLANKS AND BACKGROUND SAMPLES

__X__ Acceptable
_____ Detection Limits Adjusted

The following blanks were analyzed:
__X__ Method (preparation) Blanks
_____ Field Blanks
_____ Instrument Blanks
_____ Rinsate Blanks
_____ Background Samples
_____ VOA Trip Blanks

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: No contamination was found in the method blank at reporting limit levels.

8. SURROGATE COMPOUNDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Surrogate compound recoveries for samples analyzed within a sample group must be within the limits specified in the method. If the surrogate recovery is between 10% and the lower limit, the associated detected results are qualified as estimated (J) and the non-detected results are qualified as estimated (UJ). If the surrogate recovery is <10%, the associated detected results are qualified as estimated (J) and the non-detected results are rejected (R). If the surrogate recovery is above the upper limit, the associated detected results are qualified as estimated (J). Surrogate recoveries which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: Surrogate recoveries were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

9. INTERNAL STANDARDS

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable

Internal Standard area counts for samples analyzed within a sample group must be within the range of 50% to 200% of the internal standard area for the continuing calibration. If the internal standard area is between 10% and 50% of this value, the associated detected results are qualified as estimated (J) and the non-detected results are qualified as estimated (UJ). If the internal standard area is <10% of the calibration area, both the detected and non-detected results are rejected (R). If the internal standard area is >200% of the calibration area, the associated detected results are qualified as estimated (J). Internal standards which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: The internal standard areas were within the range of 50% to 200% of the internal standard area for the continuing calibration.

10. DUPLICATE ANALYSES

Field Duplicates	Laboratory Duplicates	Laboratory Control Duplicates
____ Acceptable __X__ Acceptable with qualification ____ Unacceptable ____ Not Analyzed	____ Acceptable ____ Acceptable with qualification ____ Unacceptable ____ Not Analyzed	____ Acceptable ____ Acceptable with qualification ____ Unacceptable ____ Not Analyzed

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the results as estimated (J) for any analyte whose RPD exceeds that specified in the Sampling and Analysis Plan.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

Analyte (ug/m3)	AC-MCH-223-TS-006	AC-MCH-223-TS-1006	RPD (%)
Freon 12	3.4	3.6	6
Freon 11	7.3	8.3	13
Ethanol	10	8.0	22
Acetone	25	17	38*

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

Comments: All RPDs except acetone were within accepted control limits. (<35%) The detected acetone results were qualified as estimated (J).

11. ANALYTE IDENTIFICATION

Evaluate the ion profiles for the sample analytes and compare them to the library ion profiles provided by the laboratory. Note any identifications which are not sufficiently supported by comparison to known ion profiles.

Comments: The analyte identification was acceptable. The laboratory was requested to review the chromatograms of Subalab air samples to report estimated values for 1, 2 - Dichloroethane hits that are below the reporting limit but greater than the method detection limit. The laboratory indicated that concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv) maybe false positives.

12. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

TO-15, Air samples:

$$\text{ppbv} = \frac{(\text{analyte area})(\text{concentration of Internal standard in ppbv})}{(\text{Internal standard area})(\text{RF})}$$

TO-15, Air samples:

$$\text{ug/ = cubic meter} \quad \frac{(\text{ppbv})(\text{molecular weight of compound})}{24}$$

Comments: Analyte quantitation was acceptable. The laboratory used E qualifier on Ethanol results in sample AC-MCH-227-TS-004 because the concentration was exceeding the calibration range. The validator checked the peaks and they were not saturated, therefore, the result was qualified as estimated as (J). The laboratory reported an estimated value of 1, 2-Dichloroethane in sample AC-MCH-213-TS-008, that is below the reporting limit but greater than the method detection limit and this result was qualified as estimated (J).

Sample AC-MCH-230-TS-002

Tetrachloroethene: ((15324) (25 ppbv)) / ((738294) (0.51886)) = 1.00 ppbv.
(1.00 ppbv) (1.75) = 1.75 ppbv. Lab reported 1.8 ppbv.

13. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the

overall data usability for the specified level.

_____ **Acceptable**
__X__ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:
_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported are valid

14. USABILITY OF DATA

A. These data meet quality objectives stated in the QASP Titled -- Emergency Response and START Time Critical Quality Assurance Sampling Plan for Vapor Intrusion Assessment and Associated Sampling, Acme Cleaners, Modesto, CA dated July 30, 2012.

B These data are considered usable for the following data use objectives stated in the QASP.

1. To compare with site-specific action levels or risk-based action levels (e.g., SSL, MRL, ESL, etc) to determine if an acute or chronic health threats exist.

15. DOCUMENTATION OF LABORATORY/Field CORRECTIVE ACTION

Problem: The laboratory was requested to review the chromatograms of Subalab air samples to report estimated values for 1, 2 -Dichloroethane hits that are below the reporting limit but greater than the method detection limit.

Resolution: The revised report was received.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

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Client Sample ID: AC-MCH-230-TS-002

Lab ID#: 1208083BR1-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**j080718r1**	**Date of Collection:**	**7/31/12 1:33:00 PM**
Dil. Factor:	**1.75**	**Date of Analysis:**	**8/7/12 05:41 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.88	Not Detected	4.3	Not Detected
Freon 114	0.88	Not Detected	6.1	Not Detected
Chloromethane	8.8	Not Detected	18	Not Detected
Vinyl Chloride	0.88	Not Detected	2.2	Not Detected
1,3-Butadiene	0.88	Not Detected	1.9	Not Detected
Bromomethane	8.8	Not Detected	34	Not Detected
Chloroethane	3.5	Not Detected	9.2	Not Detected
Freon 11	0.88	2.4	4.9	13
Ethanol	3.5	83	6.6	160
Freon 113	0.88	Not Detected	6.7	Not Detected
1,1-Dichloroethene	0.88	Not Detected	3.5	Not Detected
Acetone	8.8	23 J	21	55 J
2-Propanol	3.5	6.1	8.6	15
Carbon Disulfide	3.5	Not Detected	11	Not Detected
3-Chloropropene	3.5	Not Detected	11	Not Detected
Methylene Chloride	8.8	Not Detected	30	Not Detected
Methyl tert-butyl ether	0.88	Not Detected	3.2	Not Detected
trans-1,2-Dichloroethene	0.88	Not Detected	3.5	Not Detected
Hexane	0.88	1.8	3.1	6.4
1,1-Dichloroethane	0.88	Not Detected	3.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	3.5	Not Detected	10	Not Detected
cis-1,2-Dichloroethene	0.88	Not Detected	3.5	Not Detected
Tetrahydrofuran	0.88	Not Detected	2.6	Not Detected
Chloroform	0.88	Not Detected	4.3	Not Detected
1,1,1-Trichloroethane	0.88	Not Detected	4.8	Not Detected
Cyclohexane	0.88	Not Detected	3.0	Not Detected
Carbon Tetrachloride	0.88	Not Detected	5.5	Not Detected
2,2,4-Trimethylpentane	0.88	Not Detected	4.1	Not Detected
Benzene	0.88	Not Detected	2.8	Not Detected
1,2-Dichloroethane	0.88	Not Detected	3.5	Not Detected
Heptane	0.88	2.0	3.6	8.4
Trichloroethene	0.88	Not Detected	4.7	Not Detected
1,2-Dichloropropane	0.88	Not Detected	4.0	Not Detected
1,4-Dioxane	3.5	Not Detected	13	Not Detected
Bromodichloromethane	0.88	Not Detected	5.9	Not Detected
cis-1,3-Dichloropropene	0.88	Not Detected	4.0	Not Detected
4-Methyl-2-pentanone	0.88	Not Detected	3.6	Not Detected
Toluene	0.88	Not Detected	3.3	Not Detected
trans-1,3-Dichloropropene	0.88	Not Detected	4.0	Not Detected
1,1,2-Trichloroethane	0.88	Not Detected	4.8	Not Detected
Tetrachloroethene	0.88	1.8	5.9	12
2-Hexanone	3.5	Not Detected	14	Not Detected

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Client Sample ID: AC-MCH-230-TS-002

Lab ID#: 1208083BR1-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**j080718r1**	**Date of Collection:**	**7/31/12 1:33:00 PM**
Dil. Factor:	**1.75**	**Date of Analysis:**	**8/7/12 05:41 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.88	Not Detected	7.4	Not Detected
1,2-Dibromoethane (EDB)	0.88	Not Detected	6.7	Not Detected
Chlorobenzene	0.88	Not Detected	4.0	Not Detected
Ethyl Benzene	0.88	Not Detected	3.8	Not Detected
m,p-Xylene	0.88	Not Detected	3.8	Not Detected
o-Xylene	0.88	Not Detected	3.8	Not Detected
Styrene	0.88	Not Detected	3.7	Not Detected
Bromoform	0.88	Not Detected	9.0	Not Detected
Cumene	0.88	Not Detected	4.3	Not Detected
1,1,2,2-Tetrachloroethane	0.88	Not Detected	6.0	Not Detected
Propylbenzene	0.88	Not Detected	4.3	Not Detected
4-Ethyltoluene	0.88	Not Detected	4.3	Not Detected
1,3,5-Trimethylbenzene	0.88	Not Detected	4.3	Not Detected
1,2,4-Trimethylbenzene	0.88	Not Detected	4.3	Not Detected
1,3-Dichlorobenzene	0.88	Not Detected	5.3	Not Detected
1,4-Dichlorobenzene	0.88	Not Detected	5.3	Not Detected
alpha-Chlorotoluene	0.88	Not Detected	4.5	Not Detected
1,2-Dichlorobenzene	0.88	Not Detected	5.3	Not Detected
1,2,4-Trichlorobenzene	3.5	Not Detected	26	Not Detected
Hexachlorobutadiene	3.5	Not Detected	37	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	117	70-130
4-Bromofluorobenzene	111	70-130

(b) (6) [redacted] 9/24/12

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Client Sample ID: AC-MCH-227-TS-004

Lab ID#: 1208083BR1-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**j080810r1**	**Date of Collection:**	**7/31/12 1:24:00 PM**
Dil. Factor:	**1.85**	**Date of Analysis:**	**8/8/12 12:44 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.92	Not Detected	4.6	Not Detected
Freon 114	0.92	Not Detected	6.5	Not Detected
Chloromethane	9.2	Not Detected	19	Not Detected
Vinyl Chloride	0.92	Not Detected	2.4	Not Detected
1,3-Butadiene	0.92	Not Detected	2.0	Not Detected
Bromomethane	9.2	Not Detected	36	Not Detected
Chloroethane	3.7	Not Detected	9.8	Not Detected
Freon 11	0.92	Not Detected	5.2	Not Detected
Ethanol	3.7	670 E J	7.0	1200 E J
Freon 113	0.92	Not Detected	7.1	Not Detected
1,1-Dichloroethene	0.92	Not Detected	3.7	Not Detected
Acetone	9.2	32 J	22	77 J
2-Propanol	3.7	35	9.1	86
Carbon Disulfide	3.7	Not Detected	12	Not Detected
3-Chloropropene	3.7	Not Detected	12	Not Detected
Methylene Chloride	9.2	Not Detected	32	Not Detected
Methyl tert-butyl ether	0.92	Not Detected	3.3	Not Detected
trans-1,2-Dichloroethene	0.92	Not Detected	3.7	Not Detected
Hexane	0.92	Not Detected	3.3	Not Detected
1,1-Dichloroethane	0.92	Not Detected	3.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	3.7	Not Detected	11	Not Detected
cis-1,2-Dichloroethene	0.92	Not Detected	3.7	Not Detected
Tetrahydrofuran	0.92	Not Detected	2.7	Not Detected
Chloroform	0.92	Not Detected	4.5	Not Detected
1,1,1-Trichloroethane	0.92	Not Detected	5.0	Not Detected
Cyclohexane	0.92	Not Detected	3.2	Not Detected
Carbon Tetrachloride	0.92	Not Detected	5.8	Not Detected
2,2,4-Trimethylpentane	0.92	Not Detected	4.3	Not Detected
Benzene	0.92	Not Detected	3.0	Not Detected
1,2-Dichloroethane	0.92	Not Detected	3.7	Not Detected
Heptane	0.92	Not Detected	3.8	Not Detected
Trichloroethene	0.92	Not Detected	5.0	Not Detected
1,2-Dichloropropane	0.92	Not Detected	4.3	Not Detected
1,4-Dioxane	3.7	Not Detected	13	Not Detected
Bromodichloromethane	0.92	Not Detected	6.2	Not Detected
cis-1,3-Dichloropropene	0.92	Not Detected	4.2	Not Detected
4-Methyl-2-pentanone	0.92	Not Detected	3.8	Not Detected
Toluene	0.92	Not Detected	3.5	Not Detected
trans-1,3-Dichloropropene	0.92	Not Detected	4.2	Not Detected
1,1,2-Trichloroethane	0.92	Not Detected	5.0	Not Detected
Tetrachloroethene	0.92	Not Detected	6.3	Not Detected
2-Hexanone	3.7	Not Detected	15	Not Detected

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Client Sample ID: AC-MCH-227-TS-004

Lab ID#: 1208083BR1-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**j080810r1**	**Date of Collection:**	**7/31/12 1:24:00 PM**
Dil. Factor:	**1.85**	**Date of Analysis:**	**8/8/12 12:44 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.92	Not Detected	7.9	Not Detected
1,2-Dibromoethane (EDB)	0.92	Not Detected	7.1	Not Detected
Chlorobenzene	0.92	Not Detected	4.2	Not Detected
Ethyl Benzene	0.92	Not Detected	4.0	Not Detected
m,p-Xylene	0.92	Not Detected	4.0	Not Detected
o-Xylene	0.92	Not Detected	4.0	Not Detected
Styrene	0.92	Not Detected	3.9	Not Detected
Bromoform	0.92	Not Detected	9.6	Not Detected
Cumene	0.92	Not Detected	4.5	Not Detected
1,1,2,2-Tetrachloroethane	0.92	Not Detected	6.4	Not Detected
Propylbenzene	0.92	Not Detected	4.5	Not Detected
4-Ethyltoluene	0.92	Not Detected	4.5	Not Detected
1,3,5-Trimethylbenzene	0.92	Not Detected	4.5	Not Detected
1,2,4-Trimethylbenzene	0.92	Not Detected	4.5	Not Detected
1,3-Dichlorobenzene	0.92	Not Detected	5.6	Not Detected
1,4-Dichlorobenzene	0.92	Not Detected	5.6	Not Detected
alpha-Chlorotoluene	0.92	Not Detected	4.8	Not Detected
1,2-Dichlorobenzene	0.92	Not Detected	5.6	Not Detected
1,2,4-Trichlorobenzene	3.7	Not Detected	27	Not Detected
Hexachlorobutadiene	3.7	Not Detected	39	Not Detected

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	123	70-130
4-Bromofluorobenzene	110	70-130

(b) (6)

9/24/12

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Client Sample ID: AC-MCH-223-TS-006

Lab ID#: 1208083BR1-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**j080719r1**	**Date of Collection:**	**7/31/12 2:37:00 PM**
Dil. Factor:	**1.36**	**Date of Analysis:**	**8/7/12 06:25 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.68	0.68	3.4	3.4
Freon 114	0.68	Not Detected	4.8	Not Detected
Chloromethane	6.8	Not Detected	14	Not Detected
Vinyl Chloride	0.68	Not Detected	1.7	Not Detected
1,3-Butadiene	0.68	Not Detected	1.5	Not Detected
Bromomethane	6.8	Not Detected	26	Not Detected
Chloroethane	2.7	Not Detected	7.2	Not Detected
Freon 11	0.68	1.3	3.8	7.3
Ethanol	2.7	5.4	5.1	10
Freon 113	0.68	Not Detected	5.2	Not Detected
1,1-Dichloroethene	0.68	Not Detected	2.7	Not Detected
Acetone	6.8	10 J	16	25 J
2-Propanol	2.7	Not Detected	6.7	Not Detected
Carbon Disulfide	2.7	Not Detected	8.5	Not Detected
3-Chloropropene	2.7	Not Detected	8.5	Not Detected
Methylene Chloride	6.8	Not Detected	24	Not Detected
Methyl tert-butyl ether	0.68	Not Detected	2.4	Not Detected
trans-1,2-Dichloroethene	0.68	Not Detected	2.7	Not Detected
Hexane	0.68	Not Detected	2.4	Not Detected
1,1-Dichloroethane	0.68	Not Detected	2.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.7	Not Detected	8.0	Not Detected
cis-1,2-Dichloroethene	0.68	Not Detected	2.7	Not Detected
Tetrahydrofuran	0.68	Not Detected	2.0	Not Detected
Chloroform	0.68	Not Detected	3.3	Not Detected
1,1,1-Trichloroethane	0.68	Not Detected	3.7	Not Detected
Cyclohexane	0.68	Not Detected	2.3	Not Detected
Carbon Tetrachloride	0.68	Not Detected	4.3	Not Detected
2,2,4-Trimethylpentane	0.68	Not Detected	3.2	Not Detected
Benzene	0.68	Not Detected	2.2	Not Detected
1,2-Dichloroethane	0.68	Not Detected	2.8	Not Detected
Heptane	0.68	Not Detected	2.8	Not Detected
Trichloroethene	0.68	Not Detected	3.6	Not Detected
1,2-Dichloropropane	0.68	Not Detected	3.1	Not Detected
1,4-Dioxane	2.7	Not Detected	9.8	Not Detected
Bromodichloromethane	0.68	Not Detected	4.6	Not Detected
cis-1,3-Dichloropropene	0.68	Not Detected	3.1	Not Detected
4-Methyl-2-pentanone	0.68	Not Detected	2.8	Not Detected
Toluene	0.68	Not Detected	2.6	Not Detected
trans-1,3-Dichloropropene	0.68	Not Detected	3.1	Not Detected
1,1,2-Trichloroethane	0.68	Not Detected	3.7	Not Detected
Tetrachloroethene	0.68	Not Detected	4.6	Not Detected
2-Hexanone	2.7	Not Detected	11	Not Detected

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Client Sample ID: AC-MCH-223-TS-006

Lab ID#: 1208083BR1-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	j080719r1	Date of Collection:	7/31/12 2:37:00 PM
Dil. Factor:	1.36	Date of Analysis:	8/7/12 06:25 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.68	Not Detected	5.8	Not Detected
1,2-Dibromoethane (EDB)	0.68	Not Detected	5.2	Not Detected
Chlorobenzene	0.68	Not Detected	3.1	Not Detected
Ethyl Benzene	0.68	Not Detected	3.0	Not Detected
m,p-Xylene	0.68	Not Detected	3.0	Not Detected
o-Xylene	0.68	Not Detected	3.0	Not Detected
Styrene	0.68	Not Detected	2.9	Not Detected
Bromoform	0.68	Not Detected	7.0	Not Detected
Cumene	0.68	Not Detected	3.3	Not Detected
1,1,2,2-Tetrachloroethane	0.68	Not Detected	4.7	Not Detected
Propylbenzene	0.68	Not Detected	3.3	Not Detected
4-Ethyltoluene	0.68	Not Detected	3.3	Not Detected
1,3,5-Trimethylbenzene	0.68	Not Detected	3.3	Not Detected
1,2,4-Trimethylbenzene	0.68	Not Detected	3.3	Not Detected
1,3-Dichlorobenzene	0.68	Not Detected	4.1	Not Detected
1,4-Dichlorobenzene	0.68	Not Detected	4.1	Not Detected
alpha-Chlorotoluene	0.68	Not Detected	3.5	Not Detected
1,2-Dichlorobenzene	0.68	Not Detected	4.1	Not Detected
1,2,4-Trichlorobenzene	2.7	Not Detected	20	Not Detected
Hexachlorobutadiene	2.7	Not Detected	29	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	122	70-130
4-Bromofluorobenzene	110	70-130

(b) (6) [redacted]

9/24/12

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Client Sample ID: AC-MCH-223-TS-1006

Lab ID#: 1208083BR1-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**j080732r1**	**Date of Collection:**	**7/31/12 2:37:00 PM**
Dil. Factor:	**1.36**	**Date of Analysis:**	**8/8/12 07:45 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.68	0.73	3.4	3.6
Freon 114	0.68	Not Detected	4.8	Not Detected
Chloromethane	6.8	Not Detected	14	Not Detected
Vinyl Chloride	0.68	Not Detected	1.7	Not Detected
1,3-Butadiene	0.68	Not Detected	1.5	Not Detected
Bromomethane	6.8	Not Detected	26	Not Detected
Chloroethane	2.7	Not Detected	7.2	Not Detected
Freon 11	0.68	1.5	3.8	8.3
Ethanol	2.7	4.3	5.1	8.0
Freon 113	0.68	Not Detected	5.2	Not Detected
1,1-Dichloroethene	0.68	Not Detected	2.7	Not Detected
Acetone	6.8	7.1 J	16	17 J
2-Propanol	2.7	Not Detected	6.7	Not Detected
Carbon Disulfide	2.7	Not Detected	8.5	Not Detected
3-Chloropropene	2.7	Not Detected	8.5	Not Detected
Methylene Chloride	6.8	Not Detected	24	Not Detected
Methyl tert-butyl ether	0.68	Not Detected	2.4	Not Detected
trans-1,2-Dichloroethene	0.68	Not Detected	2.7	Not Detected
Hexane	0.68	Not Detected	2.4	Not Detected
1,1-Dichloroethane	0.68	Not Detected	2.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.7	Not Detected	8.0	Not Detected
cis-1,2-Dichloroethene	0.68	Not Detected	2.7	Not Detected
Tetrahydrofuran	0.68	Not Detected	2.0	Not Detected
Chloroform	0.68	Not Detected	3.3	Not Detected
1,1,1-Trichloroethane	0.68	Not Detected	3.7	Not Detected
Cyclohexane	0.68	Not Detected	2.3	Not Detected
Carbon Tetrachloride	0.68	Not Detected	4.3	Not Detected
2,2,4-Trimethylpentane	0.68	Not Detected	3.2	Not Detected
Benzene	0.68	Not Detected	2.2	Not Detected
1,2-Dichloroethane	0.68	Not Detected	2.8	Not Detected
Heptane	0.68	Not Detected	2.8	Not Detected
Trichloroethene	0.68	Not Detected	3.6	Not Detected
1,2-Dichloropropane	0.68	Not Detected	3.1	Not Detected
1,4-Dioxane	2.7	Not Detected	9.8	Not Detected
Bromodichloromethane	0.68	Not Detected	4.6	Not Detected
cis-1,3-Dichloropropene	0.68	Not Detected	3.1	Not Detected
4-Methyl-2-pentanone	0.68	Not Detected	2.8	Not Detected
Toluene	0.68	Not Detected	2.6	Not Detected
trans-1,3-Dichloropropene	0.68	Not Detected	3.1	Not Detected
1,1,2-Trichloroethane	0.68	Not Detected	3.7	Not Detected
Tetrachloroethene	0.68	Not Detected	4.6	Not Detected
2-Hexanone	2.7	Not Detected	11	Not Detected

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Client Sample ID: AC-MCH-223-TS-1006

Lab ID#: 1208083BR1-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**j080732r1**	**Date of Collection:**	**7/31/12 2:37:00 PM**
Dil. Factor:	**1.36**	**Date of Analysis:**	**8/8/12 07:45 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.68	Not Detected	5.8	Not Detected
1,2-Dibromoethane (EDB)	0.68	Not Detected	5.2	Not Detected
Chlorobenzene	0.68	Not Detected	3.1	Not Detected
Ethyl Benzene	0.68	Not Detected	3.0	Not Detected
m,p-Xylene	0.68	Not Detected	3.0	Not Detected
o-Xylene	0.68	Not Detected	3.0	Not Detected
Styrene	0.68	Not Detected	2.9	Not Detected
Bromoform	0.68	Not Detected	7.0	Not Detected
Cumene	0.68	Not Detected	3.3	Not Detected
1,1,2,2-Tetrachloroethane	0.68	Not Detected	4.7	Not Detected
Propylbenzene	0.68	Not Detected	3.3	Not Detected
4-Ethyltoluene	0.68	Not Detected	3.3	Not Detected
1,3,5-Trimethylbenzene	0.68	Not Detected	3.3	Not Detected
1,2,4-Trimethylbenzene	0.68	Not Detected	3.3	Not Detected
1,3-Dichlorobenzene	0.68	Not Detected	4.1	Not Detected
1,4-Dichlorobenzene	0.68	Not Detected	4.1	Not Detected
alpha-Chlorotoluene	0.68	Not Detected	3.5	Not Detected
1,2-Dichlorobenzene	0.68	Not Detected	4.1	Not Detected
1,2,4-Trichlorobenzene	2.7	Not Detected	20	Not Detected
Hexachlorobutadiene	2.7	Not Detected	29	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	124	70-130
4-Bromofluorobenzene	113	70-130

(b) (6)

9/24/12

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Client Sample ID: AC-MCH-213-TS-008

Lab ID#: 1208083BR1-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**j080720r1**	**Date of Collection:**	**7/31/12 2:53:00 PM**
Dil. Factor:	**2.06**	**Date of Analysis:**	**8/7/12 07:21 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	Not Detected	5.1	Not Detected
Freon 114	1.0	Not Detected	7.2	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.3	Not Detected
Bromomethane	10	Not Detected	40	Not Detected
Chloroethane	4.1	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.8	Not Detected
Ethanol	4.1	330	7.8	630
Freon 113	1.0	Not Detected	7.9	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Acetone	10	43 J	24	100 J
2-Propanol	4.1	46	10	110
Carbon Disulfide	4.1	Not Detected	13	Not Detected
3-Chloropropene	4.1	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	36	Not Detected
Methyl tert-butyl ether	1.0	Not Detected	3.7	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Hexane	1.0	Not Detected	3.6	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.1	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	1.0	Not Detected	5.0	Not Detected
1,1,1-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Cyclohexane	1.0	Not Detected	3.5	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.5	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.8	Not Detected
Benzene	1.0	Not Detected	3.3	Not Detected
1,2-Dichloroethane	1.0	0.48 J J	4.2	1.9 J J
Heptane	1.0	Not Detected	4.2	Not Detected
Trichloroethene	1.0	Not Detected	5.5	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.8	Not Detected
1,4-Dioxane	4.1	Not Detected	15	Not Detected
Bromodichloromethane	1.0	Not Detected	6.9	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.7	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.2	Not Detected
Toluene	1.0	Not Detected	3.9	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.7	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Tetrachloroethene	1.0	Not Detected	7.0	Not Detected
2-Hexanone	4.1	Not Detected	17	Not Detected

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Client Sample ID: AC-MCH-213-TS-008
Lab ID#: 1208083BR1-10A
EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**j080720r1**	**Date of Collection:**	**7/31/12 2:53:00 PM**
Dil. Factor:	**2.06**	**Date of Analysis:**	**8/7/12 07:21 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.8	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.9	Not Detected
Chlorobenzene	1.0	Not Detected	4.7	Not Detected
Ethyl Benzene	1.0	Not Detected	4.5	Not Detected
m,p-Xylene	1.0	Not Detected	4.5	Not Detected
o-Xylene	1.0	Not Detected	4.5	Not Detected
Styrene	1.0	Not Detected	4.4	Not Detected
Bromoform	1.0	Not Detected	11	Not Detected
Cumene	1.0	Not Detected	5.1	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	7.1	Not Detected
Propylbenzene	1.0	Not Detected	5.1	Not Detected
4-Ethyltoluene	1.0	Not Detected	5.1	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	5.1	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	5.1	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.3	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
1,2,4-Trichlorobenzene	4.1	Not Detected	30	Not Detected
Hexachlorobutadiene	4.1	Not Detected	44	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	122	70-130
4-Bromofluorobenzene	109	70-130

(b) (6)

9/24/12

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Client Sample ID: Lab Blank

Lab ID#: 1208083BR1-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**j080711r1**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/7/12 01:39 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1208083BR1-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	J080711r1	**Date of Collection:** NA	
Dil. Factor:	1.00	**Date of Analysis:** 8/7/12 01:39 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	120	70-130
4-Bromofluorobenzene	108	70-130

(b) (6)

9/24/12

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.C.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page ____ of ____

Project Manager [redacted]
Collected by: (Print a[redacted]
Company Ed[illegible] & Equipment Email [redacted]
Address 1940 Webster St City Oakland State CA Zip 94612
Phone 415-204-8165 Fax

Project Info:
P.O. #
Project # 002693-2190-01RA
Project Name Acme Cleaners

Turn Around Time: ☒ Normal ☐ Rush ____ specify

Lab Use Only: Pressurized by: Date: Pressurization Gas: N2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
	AC-MCH-230-IND-001	5763	7/31-8/1	1134-1216	TO-15 Low	-29.65	-5.95		
02A	AC-MCH-230-TS-002	2036	7/31/12	1333	TO-15 - MID	-26.35	-6.90		
	AC-MCH-227-IND-003	4199	7/31-8/1	1324-1220	TO-15 - Low	-26.55	-6.35		
04A	AC-MCH-227-TS-004	2188	7/31/12	1324	TO-15 MID	-29.50	-0.55		
	AC-MCH-223-IND-005	34000	7/31-8/1	1345-1222	TO-15 - Low	-29.55	-11.50		
06A	AC-MCH-223-TS-006	37421	7/31/12	1437	TO-15 Mid	-29.25	-0.05		
07A	AC-MCH-223-TS-1006	37681	7/31/12	1437	TO-15 Mid	-29.05	0.10		
	AC-MCH-243-IND-007	36045	7/31-8/1	1420-1225	TO-15 Low	-29.65	-8.0		
	AC-MCH-243-IND-1007	34346	7/31-8/1	1420-1225	TO-15 Low	-29.5	-7.95		
10A	AC-MCH-243-TS-008	34643	7/31/12	1453	TO-15 - Mid	-29.25	0		

[redacted]nature) Date/Time 8/3/12 1017 [redacted] 8-3-12 1017

Relinquished by: (signature) Date/Time Received by: (signature) Date/Time

Relinquished by: (signature) Date/Time Received by: (signature) Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	ATL Dropoff		NA	Good	Yes No None	1208083

Form 1293 rev.11

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	**Location: Modesto, CA**
Project Number: 002693.2190.01RA	**TDD:** 02-09-12-07-0007

Laboratory: US EPA Region 9 Laboratory	**Lab Project No: 1209059, SDG 12269B**
Sampling Dates: 09/25/2012	**Sample Matrix: Air**
Analytical Method: VOCs by Mod TO-15 /SIM	**Data Reviewer: M. Song**

REVIEW AND APPROVAL:

Data Reviewer: (b) (6) **Date:** 11/7/12
Technical QA Reviewer: Howard Edwards **Date:** _____
Project Manager: Seth Heller **Date:** _____

SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	AC-223-TS-009	1209059-01
2	AC-227-TS-010	1209059-02
3	AC-213-TS-011	1209059-03
4	AC-Blank-92512-002	1209059-04
5		
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20		

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

DATA PACKAGE COMPLETENESS CHECKLIST:

Checklist Code:

- X — Included: no problems
- * — Included: problems noted in review
- O — Not Included and/or Not Available
- NR — Not Required
- RS — Provided As Re-submission

Case Narrative:

- X — Case Narrative present (EPA QA notes were provided in package)

Quality Control Summary Package:

- X — Data Summary sheets
- NR — Matrix Spike/Spike Duplicate Recoveries
- X — Laboratory Control Sample Recoveries
- * — Method Blank Summaries
- X — GC/MS Tuning and Mass Calibration
- X — Initial Calibration Data
- X — Continuing Calibration Data
- NR — Surrogate Compound Recovery Summary
- NR — Internal Standard Area Summary

Sample and Blank Data Package Section

- X — Reconstructed Ion Current (RIC) Chromatogram
- X — Quantitation Reports
- X — Raw and Enhanced Mass Spectra
- X — Reference Mass Spectra for Target Compounds
- X — Mass Spectral Library Search for TICs

Raw QC Data Package Section

- X — DFTPP and/or BFB mass spectra and mass listings
- X — RIC Chromatogram for Standards, LCS, and MS/MSD
- X — Quantitation Reports for Standards, LCS, and MS/MSD
- X — List of Instrument Detection Limits
- X — Chain-of-Custody Records
- X — Canister Pressure Records
- X — Sample Preparation and Analysis Run Logs
- X — Canister Certifications

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004, OSWER Directive 9360.4-01, dated April 1990), in the START QAPP, on in the site specific sampling plan.

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times, Pressure, Canister Certifications	Yes
2	GC/MS Tuning Criteria	Yes
3	Initial Calibrations	Yes
4	Continuing Calibrations	Yes
5	Laboratory Control Sample	Yes
6	Matrix Spike/Matrix Spike Duplicate	NA
7	Blanks and Background Samples	No
8	Internal Standards	Yes
9	Duplicate Analyses	Yes
10	Analyte Identification	Yes
11	Analyte Quantitation	Yes
12	Overall Assessment of Data	No

Comments: NA: Not analyzed

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

1. HOLDING TIMES, PRESSURES AND CANISTER CERTIFICATION

HOLDING TIMES	PRESSURES	CANISTER CERTIFICATION
X Acceptable	X Acceptable	X Acceptable
Acceptable with qualification	Acceptable with qualification	Acceptable with qualification
Unacceptable	Unacceptable	Unacceptable

The sample canister were cleaned and tested according to the procedure in TO-15 method and certification was supplied except as noted under Comments. The sample canisters were pressure tested before shipment, before sampling, after sampling and prior to analysis except as noted under Comments. There were no unexpected losses of pressure in canister. Samples were pressurized prior to analysis. Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample custody unless specified.

For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the non-detected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgment. Detected results from canister with out field pressure measurement should be qualified either as estimated (J) or rejected (R) based on the reviewer's judgment. Unexplained pressure losses in canister > 10 % should be qualified and potentially rejected (R). Detected results from non-certified canisters should be qualified either as estimated (J) or rejected (R) based on the reviewer's judgment.

TO-15: 30 days (from collection) for analysis.

Comments: All samples were analyzed 14 days from collection. Pressure in laboratory for canisters and the canister certifications were acceptable.

2. GC/MS INSTRUMENT PERFORMANCE CRITERIA

Yes	**BFB (EPA 8260B) or DFTPP (EPA 8270C) has been run for every 12 hours of sample analysis per instrument.**
Yes	**The BFB or DFTPP ion abundance criteria indicated in EPA/540/G-90/004 have been met for each instrument.**

Comments:

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

3. INITIAL CALIBRATIONS

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**

Unless flagged below, a 5-point initial calibration was run. In addition, average Relative Response Factor (RRF), and percent relative Standard Deviation (%RSD) values were within control limits (average RRF >= 0.05; %RSD <= 30). For analytes which exceeded the %RSD control limit, associated detected results are qualified as estimated (J). If the low calibration level was not detected, the non-detected results are qualified (UJ). For analytes which exceeded the RRF control limit, associated detected results are qualified as estimated (J) and the non-detected results are qualified as rejected (R).

Comments: Percent relative standard deviation values were of target analytes were within the control limits.

4. CONTINUING CALIBRATIONS

__X__ **Acceptable**
_____ **Acceptable with qualification**
_____ **Unacceptable**

Unless flagged below, continuing calibrations were performed at the beginning and at the end of any group of samples and at least every 12 hours. In addition, Percent Difference (%D) values were within the control limit (%D <= 30). For analytes which exceeded the %D control limit, associated detected results are qualified as estimated (J). In cases where the %D is very high and indicates a severe loss of instrument sensitivity, the associated non-detected results may be qualified as estimated (UJ) or rejected (R) based on the professional judgment of the reviewer.

Comments: Percent difference values of target analytes were within the control limits

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

5. LABORATORY CONTROL SAMPLE

__X__ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
_____ No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

Comments: LCS recoveries except 1, 2-Dibromo-3-chloropropane were within the control limits generated by the laboratory. Finding does not require qualification since no 1, 2-Dibromo-3-chloropropane was detected in the samples.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The use of matrix spikes is not required by EPA Method TO-15 and is analyzed only if it is specifically requested by the client.

_____ Acceptable
_____ Acceptable with qualification
_____ Unacceptable
__NR__ Matrix Spike/Matrix Spike Duplicates Analyses were not requested

Matrix spike and matrix spike duplicate recoveries are used for a qualitative indication of accuracy (bias) and precision due to matrix effects. The RPD between the recoveries is used for a qualitative indication of precision. Spike recovery limits of 80% to 120% are specified in EPA/540/G-90/004 or the START QAPP or in the site specific sampling plan. The relative percent difference (RPD) of 25 RPD is also specified in the QAPP, SAP, or QASP. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

Comments: Not required or requested by this method.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

7. BLANKS AND BACKGROUND SAMPLES

_____ **Acceptable**
__X__ **Detection Limits Adjusted**

The following blanks were analyzed:
__X__ **Method (preparation) Blanks**
__X__ **Field Blanks**
_____ **Instrument Blanks**
_____ **Rinsate Blanks**
_____ **Background Samples**
_____ **VOA Trip Blanks**

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

Comments: Trace amount of Dichloromethane (284 pptv) and Toluene (47 pptv) were detected in the method blank. Also, trace amount of Hexane (41 pptv) and Toluene (61 pptv) were detected in AC-Blank-92512-002. The detected Hexane and Toluene results in samples AC-223-TS-009, AC-227-TS-010, and AC-213-TS-011 were qualified as non-detect (U) since the sample concentration was less than 5x the blank concentration.

8. SURROGATE COMPOUNDS

_____ **Acceptable**
_____ **Acceptable with qualification**
__NR__ **Unacceptable**

Surrogate compound recoveries for samples analyzed within a sample group must be within the limits specified in the method. If the surrogate recovery is between 10% and the lower limit, the associated detected results are qualified as estimated (J) and the non-detected results are qualified as estimated (UJ). If the surrogate recovery is <10%, the associated detected results are qualified as estimated (J) and the non-detected results are rejected (R). If the surrogate recovery is above the upper limit, the associated detected results are qualified as estimated (J). Surrogate recoveries which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: Not required or requested by this method.

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

9. INTERNAL STANDARDS

_____ Acceptable
_____ Acceptable with qualification
__NR__ Unacceptable

Internal Standard area counts for samples analyzed within a sample group must be within the range of 50% to 200% of the internal standard area for the continuing calibration. If the internal standard area is between 10% and 50% of this value, the associated detected results are qualified as estimated (J) and the non-detected results are qualified as estimated (UJ). If the internal standard area is <10% of the calibration area, both the detected and non-detected results are rejected (R). If the internal standard area is >200% of the calibration area, the associated detected results are qualified as estimated (J). Internal standards which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

Comments: Not required or requested by this method.

10. DUPLICATE ANALYSES

Field Duplicates	Laboratory Duplicates	Laboratory Control Duplicates
_____ Acceptable _____ Acceptable with qualification _____ Unacceptable _____ Not Analyzed	__X__ Acceptable _____ Acceptable with qualification _____ Unacceptable _____ Not Analyzed	_____ Acceptable _____ Acceptable with qualification _____ Unacceptable _____ Not Analyzed

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the results as estimated (J) for any analyte whose RPD exceeds that specified in the Sampling and Analysis Plan.

$$RPD = \frac{2(Value\ 1 - Value\ 2)}{Value\ 1 + Value\ 2} \times 100\%$$

Analyte (pptv)	AC-213-TS-011	AC-213-TS-011 DUP	RPD (%)
Carbon Tetrachloride	56	58.7	5
Benzene	29	30.1	4
Tetrachloroethene	300	311	4

Comments: All RPDs were within the control limits. (<35%)

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

11. ANALYTE IDENTIFICATION

Evaluate the ion profiles for the sample analytes and compare them to the library ion profiles provided by the laboratory. Note any identifications which are not sufficiently supported by comparison to known ion profiles.

Comments: The analyte identification was acceptable.

12. ANALYTE QUANTITATION

Confirm that analyte quantitation was performed correctly using the following formulas:

TO-15, Air samples:

$$\text{ppbv} = \frac{(\text{analyte area})(\text{concentration of internal standard in ppbv})}{(\text{internal standard area})(\text{RF})}$$

TO-15, Air samples:

$$\text{ug/ = cubic meter} \quad \frac{(\text{ppbv})(\text{molecular weight of compound})}{24}$$

Comments: Analyte quantitation was acceptable.

Sample AC-223-TS-009
Tetrachloroethene: (337382) / (749.432) = 450.18 pptv
(450.18 pptv) (400mL/ 600mL) (1.42) = 426.2 pptv.
Lab reported 430 pptv.

13. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

_____ **Acceptable**
__X__ **Acceptable with Qualification**
_____ **Rejected**

Accepted data meet the minimum requirements for the following EPA data category:
_____ **ERS Screening**
_____ **Non-definitive with 10 % Conformation by Definitive Methodology**
_____ **Definitive, Comprehensive Statistical Error Determination was performed.**
__X__ **Definitive, Comprehensive Statistical Error Determination was not performed.**

ANALYTICAL DATA REVIEW SUMMARY

Tier 2 Validation

Site Name: Acme Cleaners	Location: Modesto, CA
Project Number: 002693.2190.01RA	TDD: 02-09-12-07-0007

Any qualifications to individual sample analysis results are detailed in the appropriate section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

Comments: Data as reported are valid

14. USABILITY OF DATA

A. These data meet quality objectives stated in the QASP Titled -- Emergency Response and START Time Critical Quality Assurance Sampling Plan for Vapor Intrusion Assessment and Associated Sampling, Acme Cleaners, Modesto, CA dated July 30, 2012.

B These data are considered usable for the following data use objectives stated in the QASP.

1. To compare with site-specific action levels or risk-based action levels (e.g., SSL, MRL, ESL, etc) to determine if an acute or chronic health threats exist.

15. DOCUMENTATION OF LABORATORY/Field CORRECTIVE ACTION

Problem: No problems requiring corrective action were found.

Resolution: Not required.

Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.

United States Environmental Protection Agency
Region 9 Laboratory
1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Chris Reiner	**Emergency Response Section**	**SDG:** 12269B
Project Number: R12SD5	**75 Hawthorne Street**	**Reported:** 10/30/12 15:12
Project: Acme Cleaners 2012 Sub Slab Testing	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1209059-01									**Air - Sampled: 09/25/12 10:57**
Sample ID: AC-223-TS-009									**Volatile Organic Compounds by TO-15**
Vinyl chloride		ND	U	47	ppbv	B2J0014	09/25/12	10/09/12	TO-15 SIM
1,3-Butadiene		ND	U	47	"	"	"	"	TO-15 SIM
Bromoethene		ND	U	47	"	"	"	"	TO-15 SIM
1,1-Dichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
1,1,2-Trichloro-1,2,2-trifluoroethane		65		47	"	"	"	"	TO-15 SIM
Dichloromethane		ND	U	47	"	"	"	"	TO-15 SIM
trans-1,2-Dichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
tert-Butyl methyl ether (MTBE)		ND	U	47	"	"	"	"	TO-15 SIM
Hexane		25	~~C1,J~~ U	47	"	"	"	"	TO-15 SIM
1,1-Dichloroethane		ND	U	47	"	"	"	"	TO-15 SIM
cis-1,2-Dichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
Chloroform		35	C1, J	47	"	"	"	"	TO-15 SIM
1,1,1-Trichloroethane		ND	U	47	"	"	"	"	TO-15 SIM
Carbon tetrachloride		56		47	"	"	"	"	TO-15 SIM
1,2-Dichloroethane		ND	U	47	"	"	"	"	TO-15 SIM
Benzene		42	C1, J	47	"	"	"	"	TO-15 SIM
Trichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
1,2-Dichloropropane		ND	U	47	"	"	"	"	TO-15 SIM
2,3-dichloro-1-propene		ND	U	47	"	"	"	"	TO-15 SIM
Toluene		110	~~B1,J~~ U	47	"	"	"	"	TO-15 SIM
1,3-Dichloropropane		ND	U	47	"	"	"	"	TO-15 SIM
Tetrachloroethene		430		47	"	"	"	"	TO-15 SIM
1,2-Dibromoethane (EDB)		ND	U	47	"	"	"	"	TO-15 SIM
Chlorobenzene		ND	U	47	"	"	"	"	TO-15 SIM
m&p-Xylene		ND	U	95	"	"	"	"	TO-15 SIM
o-Xylene		ND	U	47	"	"	"	"	TO-15 SIM
Styrene		ND	U	47	"	"	"	"	TO-15 SIM
1,2,3-Trichloropropane		ND	U	47	"	"	"	"	TO-15 SIM
1,2-Dichlorobenzene		ND	U	47	"	"	"	"	TO-15 SIM
1,2-Dibromo-3-chloropropane		ND	U	47	"	"	"	"	TO-15 SIM

(b) (6) 11/7/12

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Chris Reiner	**Emergency Response Section**	**SDG:** 12269B
Project Number: R12SD5	**75 Hawthorne Street**	**Reported:** 10/30/12 15:12
Project: Acme Cleaners 2012 Sub Slab Testing	**San Francisco CA, 94105**	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1209059-02									**Air - Sampled: 09/25/12 11:00**
Sample ID: AC-227-TS-010									**Volatile Organic Compounds by TO-15**
Vinyl chloride		ND	U	47	pptv	B2J0014	09/25/12	10/09/12	TO-15 SIM
1,3-Butadiene		ND	U	47	"	"	"	"	TO-15 SIM
Bromoethene		ND	U	47	"	"	"	"	TO-15 SIM
1,1-Dichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
1,1,2-Trichloro-1,2,2-trifluoroethane		66		47	"	"	"	"	TO-15 SIM
Dichloromethane		ND	U	47	"	"	"	"	TO-15 SIM
trans-1,2-Dichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
tert-Butyl methyl ether (MTBE)		ND	U	47	"	"	"	"	TO-15 SIM
Hexane		29	~~CI,J~~ U	47	"	"	"	"	TO-15 SIM
1,1-Dichloroethane		ND	U	47	"	"	"	"	TO-15 SIM
cis-1,2-Dichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
Chloroform		300		47	"	"	"	"	TO-15 SIM
1,1,1-Trichloroethane		ND	U	47	"	"	"	"	TO-15 SIM
Carbon tetrachloride		55		47	"	"	"	"	TO-15 SIM
1,2-Dichloroethane		28	CI, J	47	"	"	"	"	TO-15 SIM
Benzene		26	CI, J	47	"	"	"	"	TO-15 SIM
Trichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
1,2-Dichloropropane		ND	U	47	"	"	"	"	TO-15 SIM
2,3-dichloro-1-propene		ND	U	47	"	"	"	"	TO-15 SIM
Toluene		150	~~BI,J~~ U	47	"	"	"	"	TO-15 SIM
1,3-Dichloropropane		ND	U	47	"	"	"	"	TO-15 SIM
Tetrachloroethene		340		47	"	"	"	"	TO-15 SIM
1,2-Dibromoethane (EDB)		ND	U	47	"	"	"	"	TO-15 SIM
Chlorobenzene		ND	U	47	"	"	"	"	TO-15 SIM
m&p-Xylene		ND	U	94	"	"	"	"	TO-15 SIM
o-Xylene		ND	U	47	"	"	"	"	TO-15 SIM
Styrene		ND	U	47	"	"	"	"	TO-15 SIM
1,2,3-Trichloropropane		48		47	"	"	"	"	TO-15 SIM
1,2-Dichlorobenzene		ND	U	47	"	"	"	"	TO-15 SIM
1,2-Dibromo-3-chloropropane		ND	U	47	"	"	"	"	TO-15 SIM

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11/7/12

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Chris Reiner	Emergency Response Section	**SDG:** 12269B
Project Number: R12SD5	75 Hawthorne Street	**Reported:** 10/30/12 15:12
Project: Acme Cleaners 2012 Sub Slab Testing	San Francisco CA, 94105	

Sample Results

Analyte	Reanalysis / Extract	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 1209059-03									**Air - Sampled: 09/25/12 11:08**
Sample ID: AC-213-TS-011									**Volatile Organic Compounds by TO-15**
Vinyl chloride		ND	U	47	pptv	B2J0014	09/25/12	10/09/12	TO-15 SIM
1,3-Butadiene		ND	U	47	"	"	"	"	TO-15 SIM
Bromoethene		ND	U	47	"	"	"	"	TO-15 SIM
1,1-Dichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
1,1,2-Trichloro-1,2,2-trifluoroethane		66		47	"	"	"	"	TO-15 SIM
Dichloromethane		ND	U	47	"	"	"	"	TO-15 SIM
trans-1,2-Dichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
tert-Butyl methyl ether (MTBE)		ND	U	47	"	"	"	"	TO-15 SIM
Hexane		28	~~Cl,~~ J U	47	"	"	"	"	TO-15 SIM
1,1-Dichloroethane		ND	U	47	"	"	"	"	TO-15 SIM
cis-1,2-Dichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
Chloroform		ND	U	47	"	"	"	"	TO-15 SIM
1,1,1-Trichloroethane		ND	U	47	"	"	"	"	TO-15 SIM
Carbon tetrachloride		56		47	"	"	"	"	TO-15 SIM
1,2-Dichloroethane		ND	U	47	"	"	"	"	TO-15 SIM
Benzene		29	Cl, J	47	"	"	"	"	TO-15 SIM
Trichloroethene		ND	U	47	"	"	"	"	TO-15 SIM
1,2-Dichloropropane		ND	U	47	"	"	"	"	TO-15 SIM
2,3-dichloro-1-propene		ND	U	47	"	"	"	"	TO-15 SIM
Toluene		290	U	47	"	"	"	"	TO-15 SIM
1,3-Dichloropropane		ND	U	47	"	"	"	"	TO-15 SIM
Tetrachloroethene		300		47	"	"	"	"	TO-15 SIM
1,2-Dibromoethane (EDB)		ND	U	47	"	"	"	"	TO-15 SIM
Chlorobenzene		ND	U	47	"	"	"	"	TO-15 SIM
m&p-Xylene		ND	U	95	"	"	"	"	TO-15 SIM
o-Xylene		ND	U	47	"	"	"	"	TO-15 SIM
Styrene		ND	U	47	"	"	"	"	TO-15 SIM
1,2,3-Trichloropropane		ND	U	47	"	"	"	"	TO-15 SIM
1,2-Dichlorobenzene		ND	U	47	"	"	"	"	TO-15 SIM
1,2-Dibromo-3-chloropropane		ND	U	47	"	"	"	"	TO-15 SIM

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11/7/12

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Chris Reiner	**Emergency Response Section**	**SDG:** 12269B
Project Number: R12SD5	**75 Hawthorne Street**	**Reported:** 10/30/12 15:12
Project: Acme Cleaners 2012 Sub Slab Testing	**San Francisco CA, 94105**	

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch B2J0014 - - General Air prep - TO15 SIM									**Prepared: 10/04/12 Analyzed: 10/09/12**	
									Volatile Organic Compounds by TO-15 - Quality Control	
Blank (B2J0014-BLK1)										
Vinyl chloride	ND	U	50	pptv						
Bromoethene	ND	U	50	"						
1,1-Dichloroethene	ND	U	50	"						
Dichloromethane	284		50	"						
trans-1,2-Dichloroethene	ND	U	50	"						
tert-Butyl methyl ether (MTBE)	ND	U	50	"						
Hexane	ND	U	50	"						
1,1-Dichloroethane	ND	U	50	"						
cis-1,2-Dichloroethene	ND	U	50	"						
Chloroform	ND	U	50	"						
1,1,1-Trichloroethane	ND	U	50	"						
Carbon tetrachloride	ND	U	50	"						
1,2-Dichloroethane	ND	U	50	"						
Benzene	ND	U	50	"						
Trichloroethene	ND	U	50	"						
1,2-Dichloropropane	ND	U	50	"						
2,3-dichloro-1-propene	ND	U	50	"						
Toluene	47	CI, J	50	"						
1,3-Dichloropropane	ND	U	50	"						
Tetrachloroethene	ND	U	50	"						
1,2-Dibromoethane (EDB)	ND	U	50	"						
Chlorobenzene	ND	U	50	"						
m&p-Xylene	ND	U	100	"						
o-Xylene	ND	U	50	"						
Styrene	ND	U	50	"						
1,2,3-Trichloropropane	ND	U	50	"						
1,2-Dichlorobenzene	ND	U	50	"						
1,2-Dibromo-3-chloropropane	ND	U	50	"						
LCS (B2J0014-BS1)										
Vinyl chloride	245		50	pptv	268		92	70-130		200
Bromoethene	247		50	"	250		99	70-130		200
1,1-Dichloroethene	250		50	"	255		98	70-130		200
Dichloromethane	255		50	"	258		99	70-130		200
trans-1,2-Dichloroethene	229		50	"	262		87	70-130		200
tert-Butyl methyl ether (MTBE)	270		50	"	275		98	70-130		200
Hexane	280		50	"	270		104	70-130		200
1,1-Dichloroethane	260		50	"	252		103	70-130		200
cis-1,2-Dichloroethene	253		50	"	265		96	70-130		200
Chloroform	256		50	"	262		97	70-130		200
1,1,1-Trichloroethane	247		50	"	262		94	70-130		200
Carbon tetrachloride	260		50	"	262		99	70-130		200

(b) (7)(A) redacted

11/7/12

ENVIRONMENTAL PROTECTION AGENCY
Region 9 Laboratory

1337 S. 46th St., Bldg. 201
Richmond, CA 94804-4698

CHAIN OF CUSTODY RECORD

R12SD5

PROJ. NO. 02-09-12-07-007

PROJECT NAME Acme Cleaners 002643: 2190.93A

SAMPLERS: (Signature) [redacted]

DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NO. OF CON-TAINERS	TO-15						REMARKS
9/24/12	1057	Air		X	AC-223-TS-009	1-6L-sum	X						Can # 501
	1100				AC-227TS-010								Can # 460
	1108				AC-215-TS-011								Can # 408
	830				AC-Blank-92512-002								Can # 137

★Run mid level analysis prior to running low level analysis. These are through slab samples★

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[redacted]	9/25/12 1444	[redacted]	[redacted] US EPA R9 Lab	9/25/12 1444	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)

Received for Laboratory by: (Signature)	Date / Time	Temp.	Seals Intact (Y/N)	Conditions / Remarks

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

9-3471

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